

PRELIMINARY ENDANGERMENT ASSESSMENT

Atlas Radiator, Inc. 10110 S. Norwalk Blvd. Santa Fe Springs, CA



April 19, 1995

Via Hand Delivery

State of California, California Environmental Protection Agency, Department of Toxic Substance Control, Site Mitigation Branch 245 W. Broadway, Suite 425 Long Beach, CA 90802-4444

Attn:

Mr. Haissam Y. Salloum

Re:

10110 S. Norwalk Boulevard

Santa Fe Springs, CA

Dear Mr. Salloum:

Presented herewith is: (1) the Preliminary Endangerment Assessment (PEA) report for the referent site, (2) and a cashier's check for \$8,175.00 for the PEA oversight deposit. On behalf of Mr. Donald Miller, Alaska Petroleum Environmental Engineering, Inc. is submitting this PEA as part of the "Voluntary Site Cleanups, Walk-In Program".

A "no further action" determination is recommended as no significant levels of contamination are present. The concentration of the on-site contaminant, lead, is less than that allowed by the health-based preliminary remedial goals developed by the DTSC for industrial/commercial sites.

The on-site construction activities are being delayed due to this review; Mr. Miller is presently paying interest on a construction loan without being able to build. Therefore, we respectfully request, based upon the information presented herein, that construction activities be continued prior to receipt of a formal reply.

If you have any questions or require any additional information regarding the contents of the PEA report, please do not hesitate to contact us.

Cordially,

R. Glenn Stillman Principal Engineer

RGS/mib

enc

cc: Donald G. Miller/Eddie Cerda - Atlas Radiator, Inc. Fred Cartozian - First State Bank of Southern California

400334\trans.ltd

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Atlas Radiator, Inc. 10110 S. Norwalk Blvd., Santa Fe Springs, CA

PRELIMINARY ENDANGERMENT ASSESSMENT

April 1995

Prepared For:

Mr. Donald G. Miller c/o Atlas Radiator, Inc. 10110 S. Norwalk Blvd. Santa Fe Springs, CA 90670

Prepared By:

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295 Redondo Avenue, Suite 202

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EXECUTIVE SUMMARY

The purpose for providing this Preliminary Endangerment Assessment (PEA) report is to establish remedial goals and to certify that the site has no impact on the public health and the environment. The intent is to demonstrate that the guidelines established and utilized by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) for the assessment of health risks associated with inorganic lead can be followed, and are acceptable for this site. The DTSC - Sacramento has determined that the health-based preliminary remedial goal (PRG) or clean-up criteria of less than 1,000 parts per million (ppm) of total lead is acceptable for commercial/industrial usage properties.

One on-site building was present from the 1920's to 1994. From the 1920's to 1945, it was used for oil field support services (e.g., parts storage, repair of downhole oil production pumps, etc.). Mr. Don Miller purchased the property in 1945 and leased it to B&D Oil Tool from 1945 to 1968, the lessee at the time of purchase. In 1973 Mr. Miller moved his business, Atlas Radiator, to the site and adjacent parcel. At this time he commenced using the site building for air conditioning parts storage and office space. In 1994, the building was demolished in preparation for the construction of a new building.

Prior to the current redevelopment activities several environmental studies were conducted. The results indicated the potential and confirmed presence of heavy metals and total petroleum hydrocarbons. However, none of the heavy metal results were above the California Code of Regulations, Title 22, Article 11, § 66261.24, Table II, Total Threshold Limit Concentrations. Composite lead concentrations detected are as high as 389 parts per million (ppm) with an average concentration of approximately 90 ppm.

The primary exposure pathways are inhalation and ingestion from the airborne transmission of lead. The exposed population, if any, will be limited to those constructing the new on-site building and the immediately adjacent Atlas Radiator employees. To mitigate potential exposure, the lead-impacted soil will be capped by the proposed building; the remainder of the site will be covered with asphalt and used as a parking lot.

The goal of the PEA screening analysis is to "insure that no potential health hazard is overlooked". The release does not pose an immediate potential hazard to the public health or the environment. The State developed health-based PRG for residential site usage is approximately 200 ppm. There is no wildlife or plant life present on the property. The property does not contain any water bodies nor is there any in close proximity; the nearest groundwater is approximately 60 feet below ground surface, and has been impacted by oil field activities in the surrounding area. Therefore, there is no immediate threat to the public health and environment.

The levels of lead detected on-site are below the PRG limits as determined utilizing the DTSC, Lead Risk Assessment Spreadsheet. This analysis supports the industrial/commercial limit of 1,000 ppm of total lead. Based upon the results of the PEA study, the project proponent is requesting that a "no further action" or site closure determination be made for the low concentration, lead-impacted soil that was encountered during the site redevelopment activities.

1.0 INTRODUCTION

The subject property (hereafter referred to as the "PEA site") is owned by Mr. Donald Grandcourt and Birdie Ann Miller (hereafter referred to as "Miller"), and is located at 10110 S. Norwalk Boulevard, Santa Fe Springs, Los Angeles County, California. It presently consists of an undeveloped property. The on-site facility operations previously included an air conditioning supply shop, owned by Atlas Radiator, Inc. (hereafter referred to as "Atlas"). Atlas has been operating on-site since 1973, although Miller has owned the property since 1945. From 1945 through 1968 the property was leased to an oil field support services company.

1.1 Purpose

The purpose for providing this Preliminary Endangerment Assessment (PEA) report is to establish remedial goals and to certify that the site has no impact on the public health and the environment. The intent is to demonstrate that the guidelines established and utilized by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) for the assessment of health risks associated with inorganic lead can be followed, and are acceptable for this site. The DTSC - Sacramento has determined that the health-based preliminary remedial goal (PRG) or clean-up criteria of less than 1,000 parts per million (ppm) of total lead is acceptable for commercial/industrial usage properties in the high desert (e.g., the communities of Rosamond, Lancaster, Mojave, etc.). Typically, "remediation" at these sites has been limited to only the capping of the impacted soil underneath the site structure or a parking lot.

1.2 Scope of PEA Information

The scope of this PEA follows those guidelines outlined in the following documents:

- (1) DTSC, <u>Preliminary Endangerment Assessment Guidance Manual</u>, January 1994 [REF #1].
- (2) United States Environmental Protection Agency Superfund, Volume I, Chapter 7, Human Health Evaluation Manual (Part A), Interim Final, United States Environmental Protection Agency (USEPA) (540/1-89/002), "Assessment of Health Risks From Inorganic Lead in Soil", Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities, December 1989 [REF #2].

The PEA report format presented herein tracks those items listed in Figure 3.1: Suggested Report Format, as detailed in item (1) above. The conclusions reached from this PEA are based

upon the DTSC's "Lead Risk Assessment Spreadsheet" analysis, as supported by the data compiled through the procedures outlined in item (2).

2.0 SITE DESCRIPTION

2.1 Site Identification Information

Identification	Information	
Site Name	Atlas Radiator, Inc.	
Contact Person(s)	R. Glenn Stillman - Alaska Petroleum Environmental Engineering, Inc. (APEE)	
	Eddie Cerda and/or Donald G. Miller - Atlas Radiator, Inc. Andrew C. Lazzaretto - City of Santa Fe Springs	
Site Address	10110 S. Norwalk Boulevard Santa Fe Springs, CA 90670	
Mailing Address	10122 S. Norwalk Boulevard Santa Fe Springs, CA 90670	
Phone Number	APEE Atlas Radiator, Inc. City of Santa Fe Springs	(310) 433-5144, ext. 207 (310) 944-6185 (310) 868-0511, ext. 291
Other Site Names	None	
USEPA Identification Number	CAD029404084	
CalSites Database Number	Not Assigned	
Assessor's Parcel Number and Maps	8005-15-001, Parcel Map (tentative): 24028	
Township, Range, Section, and Base & Meridian	the north 264 feet of the west 330 feet of the northwest quarter of the northeast quarter of Section 6, Township 3 South, Range 11 West, San Bernardino Base & Meridian	
Land Use and Zoning	Commercial/Industrial	

2.2 Site Maps

Site Maps are presented in Appendix A, Site Maps and Figures. Included therein are the following:

Figure 1: Parcel Map

Figure 2: Site Location Map [USGS, Whittier Quadrangle] Figure 3: Site Aerial Photograph, Dated March 20, 1988

3.0 BACKGROUND

3.1 Site Status and History

3.1.1 Business Type

The Miller property was recently subdivided into two parcels (the PEA site and Parcel 2); it will be recorded at the County Assessors' office later this month. The business type associated with the PEA site formerly contained an "Air Conditioning Supply" building used for parts storage and office space for the facility located on Parcel 2.

Parcel 2 currently consists of Atlas' temporary office trailer and radiator repair facility. Atlas is a radiator and air conditioning repair facility. Parcel 2 is <u>not</u> included in the evaluation of this PEA.

3.1.2 Years of Operations

The Air Conditioning Supply building has been on the PEA site since the 1920's. From the 1920's to 1945, it was used for oil field support services (e.g., parts storage, repair of downhole oil production pumps, etc.). Miller purchased the property in 1945 and leased it to B&D Oil Tool from 1945 to 1968. In 1973, Atlas moved to its current location and commenced using the PEA site building for parts storage and office space. In 1994, the Air Conditioning Supply building was demolished in preparation for the construction of a new building.

3.1.3 Prior Land Use

No site history prior to 1928 was indicated in the preliminary site assessment report developed by Applied Geosciences, Inc. [REF #3]. In a 1928 historical aerial photograph, a structure was noted in the area of the Air Conditioning Supply building. According to Miller, no fill soil/material was placed on the property at any time prior to the current redevelopment activities.

3.1.4 Facility Ownership/Operators

ROLE	BUSINESS TYPE	ADDRESS	PHONE NUMBER
H. Maxwell Green - B&D Oil Tool Lessee/Daily Operator	unknown	5635 "Cerentro" Dr. Long Beach, CA	310-434-4396
Donald G. Miller - Atlas Radiator, Inc. Facility and Property Owner/Daily Operator	"S" Corporation	10755 Inez Street Whittier, CA	310-941-1477
Eddie Cerda - Atlas Radiator, Inc. Facility Owner/Daily Operator	"S" Corporation	10122 Norwalk Blvd. Santa Fe Springs, CA	310-944-6185

3.1.5 Property Owners

PROPERTY OWNERS	YEARS OWNED	ADDRESS	PHONE NUMBER
Bank of America, Agent for the Property Owners residing in New York State	unknown- 1945	main downtown Los Angeles facility	213-622-9484
Donald Grandcourt and Birdie Ann Miller	1945- present	10755 Inez Street Whittier, CA 90605	310 941-1477

According to Miller, the previous site ownership was a private party who relocated to New York and left the Bank of America as manager of the property. The site was leased by the Bank of America to an oil field support services company until Miller purchased the property from the bank in 1945. The lessee remained on the property until 1968.

3.1.6 Surrounding Land Use

From review of historical aerial photographs, the surrounding land usage has primarily been oil and gas production. The PEA site is bordered to the south by Parcel 2; to the east by the Union Oil of Southern California (UNOCAL) Alexander lease, an active oil field; to the northeast by a commercial/industrial property which is currently being graded for a new building; to the north by undeveloped property which was part of the surrounding oil field and has two abandoned oil wells; to the west by S. Norwalk Boulevard beyond which is oil field property and Cascade Pumps (i.e., a commercial business).

Parcel 2 is also owned by Miller, it has three abandoned oil wells; two were reabandoned in 1994, the wells were drilled in 1922, 1928 and 1930. This property is planned to be sold later this year to Gorlitz Sewer & Drain, Inc. (a plumbing supply dealer abutting Parcel 2 to the south). In addition, there been negotiations regarding the eastern oil field property between the City of Santa Fe Springs and the UNOCAL property; the City of Santa Fe Springs is developing plans to convert the property into a public golf course.

3.2 Hazardous Substance/Waste Management Information

3.2.1 Business Activities

Since approximately 1973, the PEA site has been used for parking and parts storage for the ongoing radiator repair shop operations on Parcel 2; this facility refurbishes vehicle radiators, fuel tanks and air conditioning units. The former PEA site building was used for the air conditioning supply business and heli-arc welding of aluminum diesel fuel tanks for semi-tractors/trailers. Atlas' original office was located in the western portion of the building. By the mid-1980's, the western half of the property was used by Atlas for employee/customer parking and miscellaneous storage. The eastern half of the PEA site was used by the American Disposal Company, a municipal trash transporter, for truck parking, dumpster/drum storage and for a cardboard compactor.

3.2.2 On-Site Storage, Treatment and Disposal

Based upon the historical operations no hazardous wastes were generated on the PEA site. The only activity on the property was parts storage, office space, employee/customer parking, air conditioning repair, and heli-arc welding of diesel fuel tanks for semi-tractors/trailers. The flux associated with the heli-arc welding is primarily an aluminum compound as is not regulated. It is currently speculated that the lead contamination on the PEA site is potentially a result of the historical radiator repair operations which were conducted by Atlas on Parcel 2.

3.2.3 Regulatory Permits

No permits have been issued for the PEA site.

3.2.4 Regulatory Inspection Results

The City of Santa Fe Springs, Fire Department conducts yearly inspections at Atlas which until last year when the PEA site building was demolished, was included. All processing equipment for the radiator repair operations are located on Parcel 2. An updated Hazardous Materials Business Plan is filed every January; no hazardous materials are identified as being stored on the PEA site.

3.2.5 Prior Assessments/Remediations

In 1988, a Phase I Preliminary Site Assessment (PSA) was conducted by Applied Geosciences, Inc. on both the PEA site and Parcel 2. As part of this assessment, a methane gas survey was also conducted. It included the installation of seven near-surface vapor probes to sample soil gas from depths of approximately three feet below ground surface, Figure 4, Methane Probe Locations -Applied Geosciences, Inc. The gases analyzed in the survey included: methane, two isotopes of ethane, two isotopes of propane, iso-butane, and n-butane. No anomalous results were indicated in the report for the probes installed on the either site.

Based upon the aforementioned PSA, additional limited investigation was conducted by Woodward-Clyde Consultants on Parcel 2 and a portion of the eastern adjacent UNOCAL property [REF #4]. APEE was retained in 1991 by the City of Santa Fe Springs, UNOCAL and Miller to conduct a limited site characterization study to include the PEA site.

Four trenches were advanced on the PEA site, Figure 5, Site Characterization Diagram - APEE. Trenches 4, 5, 9, and 10 were advanced in the former drum storage areas. The trenching logs and analytical results are presented in Appendix B, APEE Site Characterization Results. Hydrocarbon contamination was found in excess of 100 parts per million within the first two feet in Trenches 4, 5 and 9; lead was encountered in Trenches 5 and 9 at less than 70 ppm.

Based on APEE's study, the eastern half of Parcel 2 was determined to be impacted with crude oil. The impacted soil was remediated by UNOCAL under a Waste Discharge Permit issued by the Regional Water Quality Control Board - Los Angeles Region. APEE conducted the technical services for the bioremediation that was conducted on UNOCAL's easterly adjacent Alexander lease.

4.0 APPARENT PROBLEM

The property was classified by the City to be in "non-conforming use" because of the limited street building set-back and the oil production activities (Figure 3). When the City of Santa Fe Springs began widening Norwalk Boulevard, the buildings on Miller's property prohibited street improvements; all the street improvements along Norwalk Boulevard have been completed except at the Miller property. Therefore, Miller was required by the City to relocate the facility buildings. The first phase of the property's redevelopment was the construction of a new radiator repair shop on the PEA site. This was being done as to not impact the current business.

The construction lender for the redevelopment of the PEA site, First State Bank of Southern California, requested that Miller retain a qualified environmental consultant to conduct on-site sampling during the PEA site grading. This was requested in order to verify the environmental disposition of the site.

As stated previously, prior to the current redevelopment activities several environmental studies were conducted. The results indicated the potential and confirmed presence of heavy metals and total petroleum hydrocarbons. However, none of the heavy metal results were above the California Code of Regulations (CCR), Title 22, Article 11, § 66261.24, Table II, Total Threshold Limit Concentrations (TTLC).

5.0 ENVIRONMENTAL SETTING

5.1 Factors Related to Soil Pathways

The site elevation is approximately 145 feet above mean sea level. The site's topography is relatively flat as is the surrounding area. There is no surface slope to the site and any surficial water ponds except along S. Norwalk Boulevard where the entry access slopes onto the street. The site is enclosed by a chain link fence and/or buildings. Access is by way of a single entrance gate on S. Norwalk Boulevard.

There has been no apparent environmental impacts from the release at the PEA site. The PEA site has been historically covered with oil lease asphalt roads or gravel. Only minor hydrocarbon staining was noted at the asphalt/soil interface surrounding the concrete pad located in the northeast corner of the PEA site. The concrete pad was removed during the initial grading operations; the remainder of the site is unpaved and predominately covered with gravel.

The predominant soil groups have been defined from APEE's subsurface trenching logs, Appendix B. The site is primarily underlain with about 12 inches of light brown sandy/gravelly loam, under which is medium to dark reddish-brown, moist, clayey loam with lenses of reddish

brown silt (Lakewood Formation). The surficial geology (i.e., the upper 60 inches) is technically classified as being Group II, soil of the alluvial fans, plains and terraces, of the "Perkins-Ricon association, 0 to 15 percent slopes". These soils "are well drained and have slow subsoil permeability" [United States Department of Agriculture, Soil Conservation Service, Report and General Soil Map, Los Angeles County, California, Revised December 1969].

The site is not currently paved, therefore infiltration of water is probable. However, as stated above the permeability is slow due to the clayey soil matrix. Metals are typically not soluble in water; only in acidic conditions would there be the potential for leachate migration. Current exposure routes are limited by the adherence of metals to clayey soil particles; movement by wind would be the transport mechanism.

The surrounding land use is commercial/industrial or oil production. The nearest school is approximately 0.8 miles to the northwest. There are no homes within 0.5 miles of the site (i.e., the nearest is located at the northwest corner of Artee and Smith Avenues to the west/northwest of the site).

5.2 Factors Related to Water Pathways

The PEA site is located in the Santa Fe Springs Plain within the Central Basin Pressure Area, part of the larger Coastal Plain of Los Angeles County. Domestic and/or commercial water supplies are generally obtained from the Lynwood and Silverado aquifer at depths of approximately 250 to 780 feet below ground surface [Los Angeles County, Department of Public Works, Flood Control District, Water Resources Division].

The release of hazardous substances to water does not exist at the site. Groundwater in the area of the PEA site is being monitored as part of the Santa Fe Springs Oil Field Reclamation project. Monitoring well MW-1 adjacent to the site is not impacted with heavy metals, however there are low concentrations of perchloroethylene (PCE), tetrachloroethylene (TCE), ethylbenzene, xylenes, toluene, and phthalates. The presence of these constituents are attributed to historical oil field production activities in Santa Fe Springs. The depth to the shallowest groundwater zone in the site vicinity is reported to be approximately 60 feet below ground surface. The groundwater gradient is to the south in this area (Appendix C, McLaren-Hart Groundwater Data).

5.3 Factors Related to Air Pathways

The potential threat of release exists only during the site grading activities when there is the possibility for fugitive dust emissions or wind dispersal. This is mitigated during grading by application of water that is primarily done for soil engineering purposes; geotechnical considerations require a soil moisture content from 10 to 15 percent for compaction.

6.0 SAMPLING ACTIVITIES AND RESULTS

6.1 Summary of Activities

6.1.1 Sampling

Based upon the above-mentioned site characterization studies, it was determined that APEE would sample the soil during the infill of the excavation in order to document the quality of the material that would underlie the building. The sampling grid locations and pad location relative thereto are depicted on *Figure 6*, *Site Grading Sampling Grid - APEE*. The location of the stockpiled soils are illustrated on *Figure 7*, *Stockpile Location Diagram*.

As part of the geotechnical requirements for construction, the actual building pad and an area extending 10 feet beyond the pad's perimeter, was to be excavated to a depth of five feet. In addition, the grading contractor took into consideration the Occupational Safety and Health Administration (OSHA) regulations pertaining to trench/excavation safety (i.e., a minimum of 1:1 sidewall sloping); the overall excavation spans grid blocks "A" through "I" (i.e., north to south) and "2" through "20" (west to east). Each grid block encompasses approximately 100 square feet.

Discrete soil samples were collected from the base of the excavation at five feet, and at each foot of material infilled thereafter (i.e., at four, three, two feet, etc.); the infill samples were composited for chemical analysis. The final finish pad elevation was approximately 18 inches above the surrounding surface elevations. Soil samples were composited and analyzed for CCR, Title 22 - Metals. No more than four individual samples were composited according to the following protocols that were derived by the Alaska Department of Environmental Conservation from the USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, Field Manual, Vol. II, SW-846:

Soil Quantity	Number of Composite Samples
< 100 cubic yards (cy)	I
100 - 500 cy	3
500 - 1,000 cy	5
>1,000 cy	9

6.1.2 Excavations

On October 31, 1994, the grading contractor started excavating utilizing three - Caterpillar (CAT) 623 scrapers supported by a CAT 980 rubber-tired loader, and a 2,000 gallon water truck for dust control. As with all grading projects, the fewer the number of times a pile of soil is moved the lower the overall project cost; in order to implement this, the contractor initially excavated grid blocks "F" through "I" to a depth of five feet and stockpiled this material to the south of the proposed building. They then followed this by excavating grid blocks "C" through "E" to a depth of approximately 2.5 feet and similarly stockpiled it; this was estimated to be one-half of the soil required to be excavated for the pad. The remaining grid blocks were to be excavated and placed into the initial hole; this was to be supplemented by the previously stockpiled material. The final building pad is to be about 18 inches above the surrounding property grade. Therefore, additional soil was imported from off-site sources; two sources were utilized, one from the replacement of County sewer lines at approximately one mile south of the site on Norwalk Boulevard, and the other from the University of Southern California (USC).

6.1.3 Observations

During the excavation, predominately in the central and northern grids blocks several items were noted: some oil field lease road material (e.g., asphaltic tank bottoms), and a limited area of crushed miscellaneous base (i.e., crushed asphalt/concrete) approximately 12 inches thick. In addition, some slightly odoriferous soil from an USC import soil load (e.g., slight hydrocarbon odor) and some finely crushed red bricks were observed at the southwest corner of the excavation.

6.1.3.1 Oil Field Wastes

Typical potentially contaminated material encountered on oil production sites include tank bottom material and drilling muds. Tank bottom material is an oil-water emulsion combined with free water and other foreign matter that collects in the bottom of stock and wash tanks. Periodically, tank bottoms are cleaned out by physically removing the material or by the use of chemicals (e.g. a demulsifier) which separates the oil from the water allowing both to be pumped out. When placed on roads, this material is eventually biodegradated by the endemic bacteria and weathered. As such, only the heavier, non-mobile hydrocarbon fractions (i.e. asphaltenes) remain.

Prior to the mid-1980's road oiling with tank bottoms was a common practice throughout oil fields in the Los Angeles Basin. Several cities within the Basin, such as the City of Carson until the late 1980-s still required that lease operators oil their roads for dust control; this was done by placing a surficial layer of asphaltic type material (e.g. tank bottoms) on the road surfaces.

It has been APEE's experience that if heavy metals are found, typically only arsenic, chromium or lead may be found in elevated concentrations. Arsenic was extensively used until the mid-1960's in downhole corrosion inhibitors and biocides. Corrosion inhibitors used in the 1950's through 1970's have been known to contain chromium, copper and silver. Naphthalene and benzene were found in oil de-emulsifiers. Chromium and barite were also used as drilling mud additives. Lead is contained in pipe dope which was used for lubricating pipe joints.

The tank bottoms and crushed brick that was encountered was excavated and stockpiled. This material is contained in the "unsuitable" stockpile along the eastern property boundary, *Figure* 7.

6.2 Presentation of Data

Three-hundred forty five soil samples were collected and composited into 69 samples for analysis. Composite lead concentrations detected are as high as 389 ppm with an average concentration of 90 ppm. This data is presented in *Appendix D*, *Tables I - IX Site Grading Analytical Data*.

6.3 Discussion of Results

6.3.1 Excavation Analytical Results

6.3.1.1 Primary Sampling

Based upon the aforementioned oil field practices, samples were collected from the tank bottom material and crushed bricks. The analyses specified include USEPA Methods 418.1 for Total Recoverable Petroleum Hydrocarbons (TRPH), 8015 for Total Fuel Petroleum Hydrocarbons - gasoline (TFPH), 8020 for benzene, toluene, ethylbenzene, and xylenes (BTEX), and CCR Title 22 - Metals. Once the initial Title 22 Metal results were reviewed, it was determined that all subsequent samples could be analyzed for only lead as the remaining metals constituents were well below any regulatory action limits (see below).

Table I, October 31 - November 1, 1994 Results contains the analytical data from: (1) the discrete samples collected at the base of the excavation, (2) infill composite samples, and (3) discrete samples from material of "potential environmental concern" determined by observation during the initial excavation. A total of 58 samples were collected for analysis: 45 were composited into 10 samples, 10 discrete samples were collected from the base of the excavation, and the three remaining discrete samples were taken from "anomalous" areas (i.e., the USC import and two samples from the area containing crushed bricks), Table IA, Off-Site Sample Results.

All Title 22 metal "screening" samples were at concentrations what would be expected to be background concentrations except for the crushed red brick sample at 210 ppm of total lead. As stated above, based upon this result all further metal samples were thereafter only analyzed for their lead content. BTEX was at non-detectable concentrations for all samples except for the USC import sample (a discrete sample at 0.0068, 0.050 and 0.120 ppm toluene, ethylbenzene and xylenes, respectively) and Composite "E" (0.0054 ppm toluene).

Of these samples, only four exceeded the 1,000 ppm TRPH goal APEE was screening for: two were composite samples Comp "A" and "K", the third was the USC import sample, and the fourth was from the base of the excavation at grid block C5-5. Regarding the lead analysis, Composite "C" was analyzed to have 1,054 ppm of total lead which exceeds the PRG and Title 22 regulatory action limit. Since Composite sample "C" was collected from only one foot below surface grade, one foot was excavated in this area and stockpiled pending re-analysis for proper management, "Unsuitable" Stockpile, Figure 7.

It was attempted to ascertain if the lead was associated with the tank bottom material or lead-contaminated soil. APEE requested that if any sample exceeded 75 ppm of total lead that it be sieved to remove the asphalt, and then both the soil and asphalt be analyzed for total lead content. Ten samples were analyzed; the analytical results are contained in *Table II*, *Asphalt vs. Soil Lead Analysis*. The highest concentration of lead in the asphalt was 395 ppm for Comp "I" and for asphalt Comp "M" at 113 ppm. In addition, the three samples which exceeded the 1,000 ppm TRPH screening criteria were also re-analyzed; the results were between 1,020 and 1,230 ppm TRPH. Accordingly, the area of Comp "I" was re-excavated and stockpiled pending further testing, "Unsuitable" Stockpile, Figure 7.

At this point, an attempt was made to determine if the low level lead contamination was from on-site or from an off-site source. Additionally, further characterization was made of the material that had been re-excavated and stockpiled.

(1) When a portion of the building pad was reaching its final elevation at approximately 18 inches above the surrounding elevation, areas in the proposed parking area lot were exposed; this allowed APEE personnel to collect "native" soil samples for chemical characterization.

The samples were analyzed for total lead, TRPH and BTEX; the laboratory mistakenly also analyzed the parking lot and one discrete sample for the full Title 22 - Metal series. The BTEX results were non-detectable, the lead results ranged from non-detectable to 338 ppm (averaging 110 ppm), and the highest TRPH concentration was 775 ppm, Table III, Parking Lot Soil Analysis. Based upon these results, APEE determined that the low concentrations of lead were potentially from on-site.

- (2) Three additional samples were collected from on-site "native" locations; in addition one on- and two off-site stockpiles were also sampled for further characterization purposes. The on-site sample locations were at the eastern property line at grid block J-26, near one of the methane vapor well probe locations at grid block J-12, and by the underground telephone junction box location at grid block M-6. The off-site locations were from two County sewer line installation soil stockpiles that were located by their excavations. The analytical results indicate that the parking lot does contain low concentrations of lead, the off-site County import sources appear to be not contaminated, and the surficial tank bottom/asphaltic layer in the area of J-12 contains elevated concentrations of lead, Table IV, Additional Background Sample Analysis. The area of J-12 was subsequently excavated and stockpiled with the other potentially contaminated material pending testing for proper management, Stockpile #3, Figure 7.
- (3) The stockpiled material pending proper management was re-sampled to determine the total lead content, *Table V*, *Stockpile Re-Analysis for Total Lead*. Based upon the analytical results, two of the piles were determined to contain acceptable concentrations of total lead (i.e., less than seven ppm), *Stockpile #3*, *Figure 7*.

6.3.1.2 Secondary Sampling

Based upon the above-mentioned analytical results and in consideration that the property owner was "self-certifying" the environmental conditions at the site (i.e., as requested by the construction lender), it was determined that all material to a depth of five feet should be excavated from the building pad area and stockpiled. The building pad's soil was then excavated by the CAT 980 loader in one foot lifts and stockpiled separately for further chemical characterization.

A total of six stockpiles were sampled; the "sixth" actually being the bottom of the excavation. As the soil from a one foot lift was excavated by the loader, each stockpile would contain up to six smaller stockpiles. Samples were taken with a hand auger and slide hammer sampler; the full profile depth of a stockpile was sampled. The higher the initial lead concentration the greater number of samples were analyzed for characterization purposes, Table VI, Sampling Frequency and Test Methodology.

6.3.2 Infill Analytical Results

Since the highest lead concentration from the stockpile sampling was at 389 ppm, with an average concentration of less than 150 ppm and no samples exceeded either the Soluble Threshold Limit Concentration (STLC) or Toxicity Characteristic Leaching Procedure (TCLP) regulatory actions limits, it was determined that the soil should be acceptable for re-infill. Twenty samples were collected and composited into five samples for analysis from the first lift

to be placed back into the hole (i.e., at a depth of five feet). The maximum lead concentration was at 111 ppm, an averaged less than 80 ppm, Table VII, Base of Excavation/Secondary Infill Analysis.

The previous analytical results indicated that an additional lift could be placed into the building pad area. This lift was sampled at a depth of 3.5 feet. Again, 20 samples were collected and composited into five samples for analysis. The highest lead concentration encountered was at 389 ppm, with an average concentration of approximately 200 ppm. Since two samples were at 379 and 389 ppm, APEE requested that the TCLP analysis be performed. The results of the five TCLP samples were all non-detectable, *Table VIII*, *Second Lift/Secondary Infill Analysis*.

Again, based upon the analytical results from the second infill lift an additional layer of soil was placed into the building pad area. This lift was sampled at a depth of two feet. Twenty samples were collected and composited into five samples for analysis. The highest lead concentration encountered was at 136 ppm and the average was less than 120 ppm, Table IX, Third Lift/Secondary Infill Analysis.

At this time all infill operations ceased as the bank decided that closure from a regulatory agency would be required in order to secure Miller's construction loan. It was at this time that APEE recommended that the site enter into the DTSC "Voluntary Site Clean Ups, Walk-in Program" and that this PEA be performed.

7.0 HUMAN HEALTH SCREENING EVALUATION

The health-based preliminary remedial goals (PRG) criteria developed by the DTSC - Office of Scientific Affairs focus on copper, lead and zinc. For industrial/commercial usage properties the PRG's for copper, lead and zinc follow the TTLC values of 2,500, 1,000 and 5,000 ppm, respectively. Of these metals, only lead has a lower residential site usage PRG of approximately 200 ppm; therefore, the DTSC has specified lead as the "target" compound for determining the health-based PRG for most heavy metal contaminated properties. No concentrations of any of the aforementioned metals exceeded these goals. Concentrations of lead used in the screening process was 389 ppm at an average concentration of 90 ppm.

Prolonged exposure to lead may cause damage to the body's blood system and to the neural, urinary, and reproductive systems. The upper limits of lead levels classified as normal are 40 micrograms (μ g) per 100 milliliters (ml) of blood or 90 μ g/liter (L) of urine. The airborne allowable concentration is specified by the threshold limit value (TLV); it is set to a level to prevent systemic effects. The TLV is 0.15 milligrams per cubic meter (mg/m³).

The exposure assessment utilized is the "Assessment of Health Risks from Inorganic Lead in Soil" is Chapter 7 of <u>Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities.</u>

7.1 Exposure Pathways and Media of Concern

The pathways for exposure for lead are depicted on Figure 8, Potential Lead Exposure Pathways, Site Conceptual Model in Appendix E. The primary pathways are inhalation and ingestion from the airborne transmission of lead impacted particulates. The potential likelihood for a release is low, as continual abatement measures will be employed during the site development activities. The exposed population, if any, will be limited to the on-site construction workers and immediately adjacent Parcel 2 facility employees.

The primary exposure pathway is from airborne transmission followed by inhalation or ingestion. To mitigate potential exposure, the lead impacted soil will be capped by the proposed building; the remainder of the site will be covered with asphalt and used as a parking lot.

7.2 Exposure Point Concentration and Chemical Groups

The parameters used for the screening evaluation are presented in *Table X*, *Lead Screening Parameters*, *Appendix E*. The criteria includes lead concentrations and parameters used for industrial exposures.

7.3 Toxicity Values and Summary Tables

The toxicity of lead for each exposure route is included in the screening level. The USEPA considers lead to be "a class B-2 carcinogen, with sufficient evidence in animals and inadequate evidence in humans" [1991c]. Therefore, a carcinogenic potency factor has not been assigned.

The upper limits of lead levels classified as normal are 40 micro grams (ug)/100 ml of blood or 90 ug/L of urine. The total threshold value is set at a level to prevent systemic effects. The federal OSHA time weighted average (TWA) is 0.2 milligrams per cubic meter (mg/m³); the USEPA has set the national ambient air quality for lead at 1.5 mg/m³, by the NIOSH Criteria document the TWA is 0.15 mg/m³ [OSHA Guidance, Chapter 7].

7.4 Risk Characterization and Summary Tables

The goal of the PEA screening analysis is to "insure that no potential health hazard is overlooked". The reasonable maximum exposure to the on-site lead will be limited to the construction of the building pad and subsequent capping of the property. Utilizing the appropriate input values as listed in the above-mentioned Lead Screening Parameters table, the

exposure risk was calculated. This data is presented in *Table XI*, *Lead Risk Assessment Spreadsheet*, *Appendix E*. The levels of lead detected on the site are within the allowable limits as determined through this assessment. This analysis supports the industrial/commercial limit of 1,000 ppm of total lead.

8.0 ECOLOGICAL SCREENING EVALUATION

The site is devoid of any wildlife or plant life. The only wildlife species that have been seen on adjacent properties are ground squirrels. An ecological risk assessment has not been conducted due to the nature, location and planned disposition of the property. The impacted soils will not impact the environment or non-human receptors as it will be completely capped.

9.0 COMMUNITY PROFILE

It was at the direction of the City of Santa Fe Springs, Redevelopment Agency that Miller was asked to relocate his facilities. In doing so, the community has been supportive of this planned development and subsequent sale of Parcel 2. The lending institution has relied on Miller's longevity in the community and has extended him the capital to re-develop his site. At the ground breaking ceremony, the Major of Santa Fe Springs was in attendance.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 Summary and Conclusions

- The past practices of the handling of hazardous waste/substances on the adjacent property may have resulted in the release of lead contamination.
- The release does not pose a significant threat to the public health or the environment. The concentration of lead impacted soil is less than the State developed health-based preliminary remedial goal of 1,000 ppm of total lead for industrial/commercial sites. The lead impacted soil will be capped underneath the building and associated parking lot.
- The release does not pose an immediate potential hazard to the public health or the environment. The average composite analysis is 90 ppm of lead. The State developed health-based preliminary remedial goal for residential site usage is approximately 200 ppm. There is no wildlife or plant life present on the property. The property does not contain any water bodies nor is there any in close proximity; nearest groundwater is

ALASKA PETROLEUM ENVIRONMENTAL ENGINEERING

Figure 1 Parcel Map

SAMIR M. KHOURY, R.C.E. 30567 EXPIRATION DATE 3-31-1996 DATE



CITY ENGINEER'S STATEMENT

I HEREBY STATE THAT I HAVE EXAMINED THIS MAP AND THAT IT CONFORMS SUBSTANTIALLY TO THE TENTATIVE MAP AND ALL APPROVED ALTERATIONS THEREOF; THAT ALL PROVISIONS OF STATE LAW AND SUBDIVISION ORDINANCE OF THE CITY OF SANTA FE SPRINGS APPLICABLE AT THE TIME OF APPROVAL OF THE TENTATIVE MAP HAVE BEEN COMPLIED WITH; AND THAT I AM SATISFIED THAT THIS MAP IS TECHNICALLY CORRECT.

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JOHN R. PRICE, CITY ENGINEER RCE 28182 LICENSE EXPIRES 3-31-1998 DATE



CITY CLERK'S STATEMENT

I HEREBY STATE THAT THE CITY COUNCIL OF THE CITY OF SANTA FE SPRINGS BY MOTION PASSED , APPROVED THE ATTACHED MAP OF PARCEL MAP NO. 24028 AND ACCEPTED ON BEHALF OF THE PUBLIC ALL STREETS, HIGHWAY, AND OTHER PUBLIC WAYS SHOWN ON SAID MAP.

JUDITH A. CHAVEZ , CITY CLERK

DATE

CITY TREASURER'S STATEMENT

I HEREBY STATE THAT ALL SPECIAL ASSESSMENTS LEVIED UNDER THE JURISDICTION OF THE CITY OF SANTA FE SPRINGS, TO WHICH THE LAND INCLUDED IN THE WITHIN SUBDIVISION OR ANY PART THEREOF, IS SUBJECT, AND WHICH MAY BE PAID IN FULL, HAVE BEEN PAID IN FULL.

DONALD M. NUTTALL, CITY TREASURER

DATE

SIGNATURE OMISSIONS

THE FOLLOWING SIGNATURES HAVE BEEN OMITTED UNDER THE PROVISIONS OF SECTION 66436 (A) 3 A (1-VIII) OF THE SUBDIVISION MAP ACT AS THEIR INTEREST IS SUCH THAT IT CANNOT RIPEN INTO A FEE TITLE AND SAID SIGNATURES ARE NOT REQUIRED BY THE LOCAL AGENCY:

SANTA GERTRUDES LAND ASSOCIATION, A CORPORATION, EASEMENT HOLDER BY DEED RECORDED FEBRUARY 21, 1877 IN BOOK 52 PAGE 319 OF DEEDS.

HASKELL M. GREEN, LESSEE UNDER AN UNRECORDED LEASE DISCLOSED BY THE PROCEEDINGS HAD IN THE MATTER OF THE ESTATE OR RAY C. SLEEPER, DECEASED, SUPERIOR COURT OF LOS ANGELES COUNTY CASE NO. 319184 PROBATE RECORDED (NOT SHOWN).

UNOCAL, A CALIFORNIA CORPORATION, SUCCESSOR TO UNION OIL COMPANY OF CALIFORNIA, LESSEE DISCLOSED BY LEASE RECORDED JUNE 2, 1977 AS INSTRUMENT NO. 77-580172, OFFICIAL RECORDS.

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SHEET 1 OF 2 SHEETS

MAP No. 24028

ITY OF SANTA FE SPRINGS ANGELES, STATE OF CALIFORNIA

OF A PORTION OF THE NORTHWEST QUARTER QUARTER OF SECTION 6, TOWNSHIP 3 SOUTH, SHOWN UPON A MAP OF THE SOUTHERN CHO SANTA GERTRUDES, RECORDED IN BOOK ELLANEOUS RECORDS, IN THE OFFICE OF THE F SAID COUNTY.

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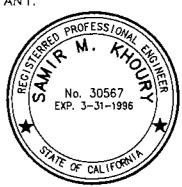
OWNERS.

ENGINEER'S STATEMENT

THIS MAP WAS PREPARED BY ME OR UNDER MY DIRECTION AND WAS COMPILED FROM RECORD DATA IN CONFORMANCE WITH THE REQUIREMENTS OF THE SUBDIVISION MAP ACT AND LOCAL ORDINANCE AT THE REQUEST OF DONALD GRANDCOURT MILLER ON MARCH 30, 1994.

I HEREBY STATE THAT THIS PARCEL MAP SUBSTANTIALLY CONFORMS TO THE APPROVED OR CONDITIONALLY APPROVED TENTATIVE MAP, IF ANY.

SAMIR M. KHOURY, R.C.E. 30567 EXPIRATION DATE 3-31-1996 DATE



CITY ENGINEER'S STATEMENT

I HEREBY STATE THAT I HAVE EXAMINED THIS MAP AND THAT IT CONFORMS SUBSTANTIALLY TO THE TENTATIVE MAP AND ALL APPROVED ALTERATIONS THEREOF; THAT ALL PROVISIONS OF STATE LAW AND SUBDIVISION ORDINANCE OF THE CITY OF SANTA FE SPRINGS APPLICABLE AT THE TIME OF APPROVAL OF THE TENTATIVE MAP HAVE BEEN COMPLIED WITH; AND THAT I AM SATISFIED THAT THIS MAP IS TECHNICALLY CORRECT.

JOHN R. PRICE, CITY ENGINEER RCE 28182 LICENSE EXPIRES 3-31-1998 DATE



CITY CLERK'S STATEMENT

I HEREBY STATE THAT THE CITY COUNCIL OF THE CITY OF SANTA FE SPRINGS BY MOTION PASSED , APPROVED THE ATTACHED MAP OF PARCEL MAP NO. 24028 AND ACCEPTED ON BEHALF OF THE PUBLIC ALL STREETS, HIGHWAY, AND OTHER PUBLIC WAYS SHOWN ON SAID MAP.

JUDITH A. CHAVEZ , CITY CLERK

DATE

PARCEL MAP No

IN THE CITY OF SANTA F
COUNTY OF LOS ANGELES, STATE

BEING A SUBDIVISION OF A PORTION OF THE OF THE NORTHEAST QUARTER OF SECTION (RANGE 11 WEST, AS SHOWN UPON A MAP (PORTION OF THE RANCHO SANTA GERTRUDE 1 PAGE 502 OF MISCELLANEOUS RECORDS, COUNTY RECORDER OF SAID COUNTY.

COORY ENGINEERIN

OWNER'S STATEMENT

WE HEREBY STATE THAT WE ARE THE OWNERS OF OR ARE INTERESTED IN THE LANDS INCLUDED WITHIN THE SUBDIVISION SHOWN ON THIS MAP WITHIN THE DISTINCTIVE BORDER LINES, AND WE CONSENT TO THE PREPARATION AND FILING OF SAID MAP AND SUBDIVISION.

WE HEREBY DEDICATE TO THE PUBLIC USE ALL STREETS, HIGHWAYS, AND OTHER PUBLIC WAYS SHOWN ON SAID MAP.

DONALD GRANDCOURT MILLER AND BIRDIE ANN MILLER, OWNERS.

DONALD GRANDCOURT MILLER (OWNER)

BIRDIE ANN MILLER (OWNER)

NOTARY ACKNOWLEDGEMENT

STATE OF CALIFORNIA) S: COUNTY OF LOS ANGELES)

DONALD GRANDCOURT MILLER AND BIRDIE ANN MILLER, PERSONALLY KNOWN
TO ME OR PROVED TO ME ON THE BASIS OF SATISFACTORY EVIDENCE TO BE
THE PERSONS WHOSE NAMES ARE SUBSCRIBED TO THE WITHIN INSTRUMENT AND
ACKNOWLEDGED TO ME THAT THEY EXECUTED THE SAME IN THEIR AUTHORIZED
CAPACITIES, AND THAT BY THEIR SIGNATURES ON THE INSTRUMENT THE
PERSONS, OR THE ENTITY UPON BEHALF OF WHICH THE PERSONS ACTED,
EXECUTED THE INSTRUMENT.

WITNESS MY HAND

SIGNATURE_______NOTARY PUBLIC IN AND FOR SAID STATE

(NAME PRINTED)

MY PRINCIPAL PLACE OF BUSINESS IS IN _______COUNTY.

MY COMMISSION EXPIRES______.

ENGINE!

THIS MAP FROM REC SUBDIVISIO GRANDCOU

I HEREBY APPROVED

SAMIR M. I EXPIRATION

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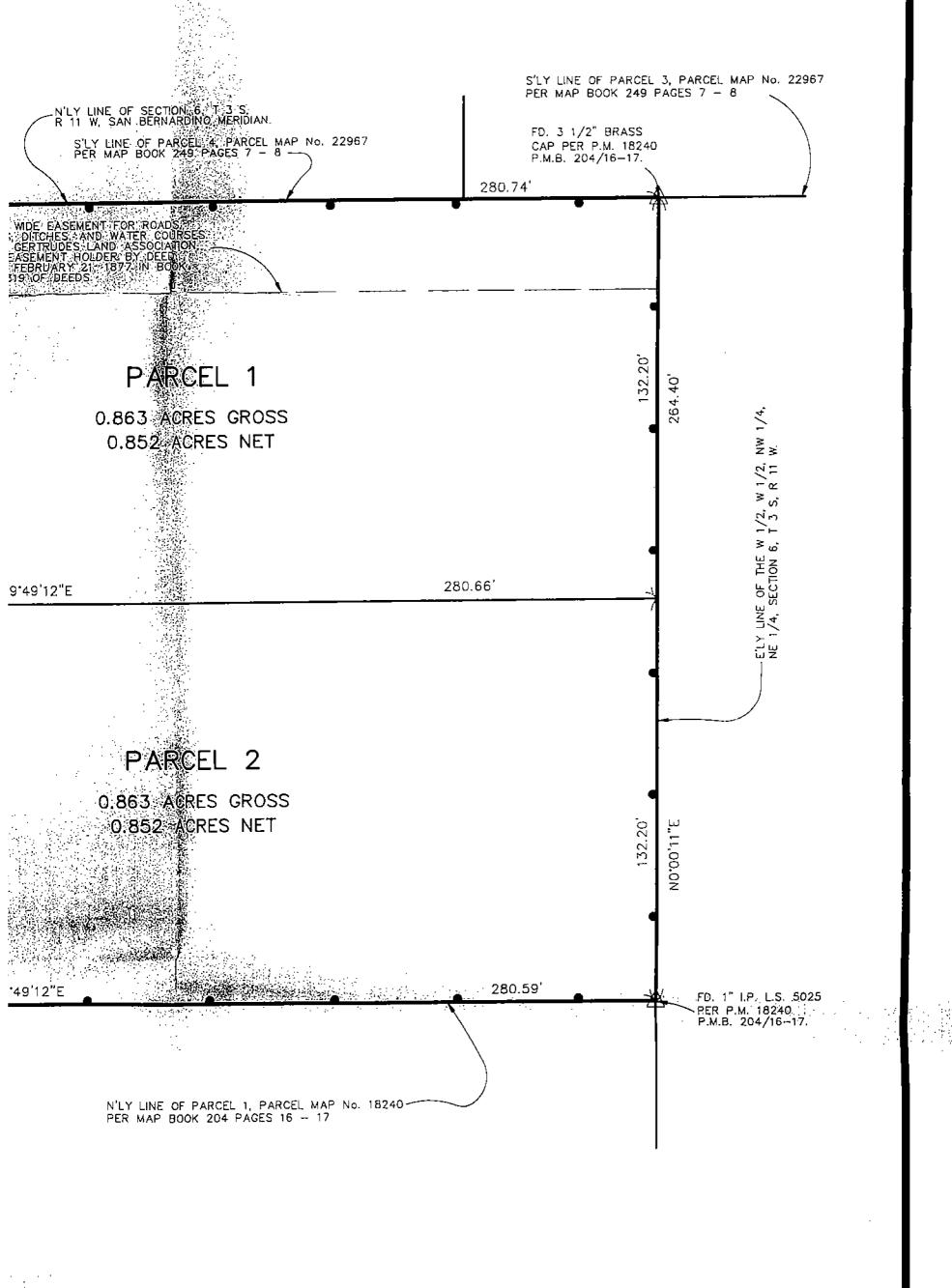
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JOHN R. PF LICENSE EX

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JUDITH A. C



SHEET 2 OF 2 SHEETS

MAP No. 24028

ITY OF SANTA FE SPRINGS ANGELES, STATE OF CALIFORNIA

ORY ENGINEERING

BOUNDARY OF PROPERTY SUBDIVIDED BY THIS MAP

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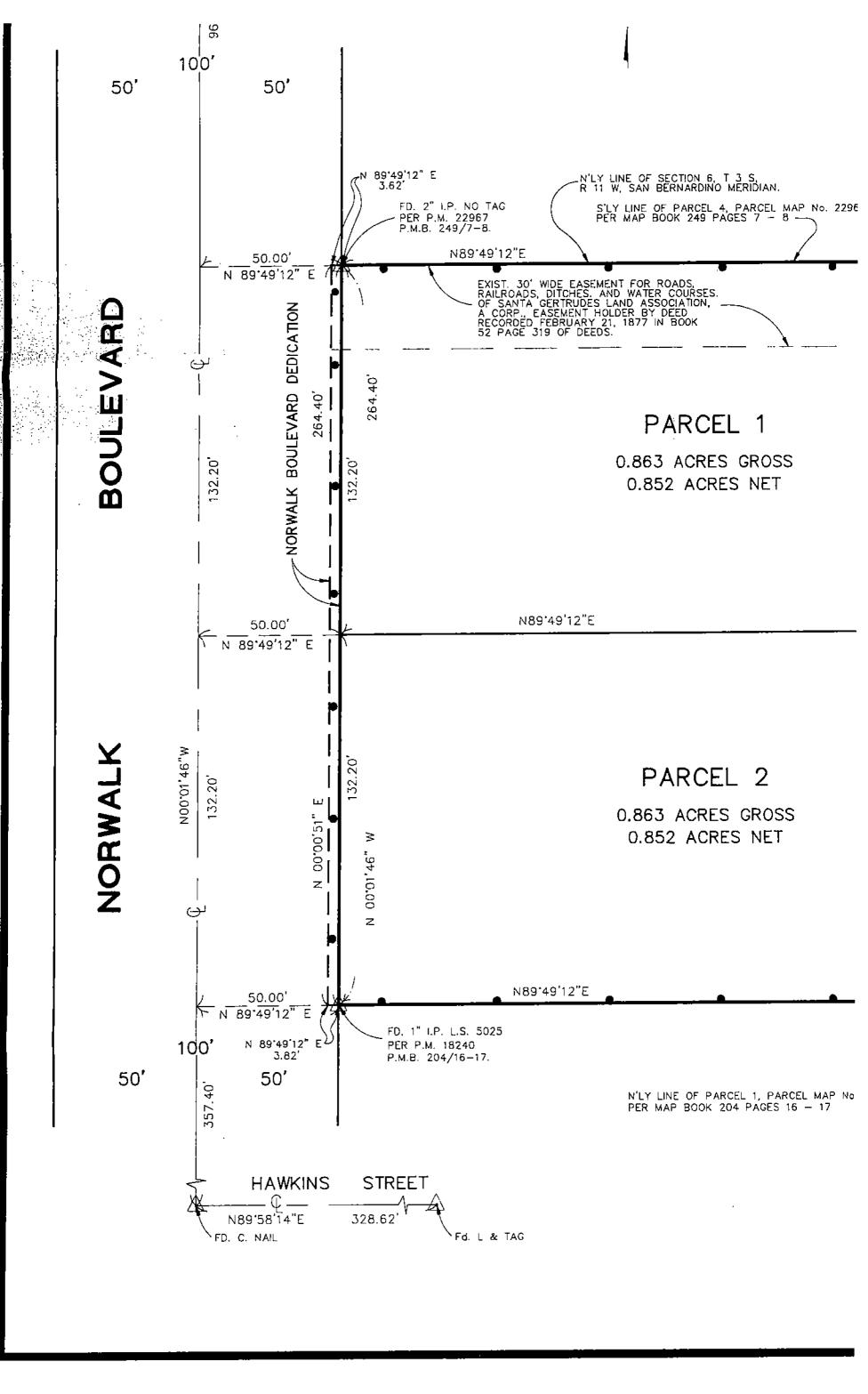
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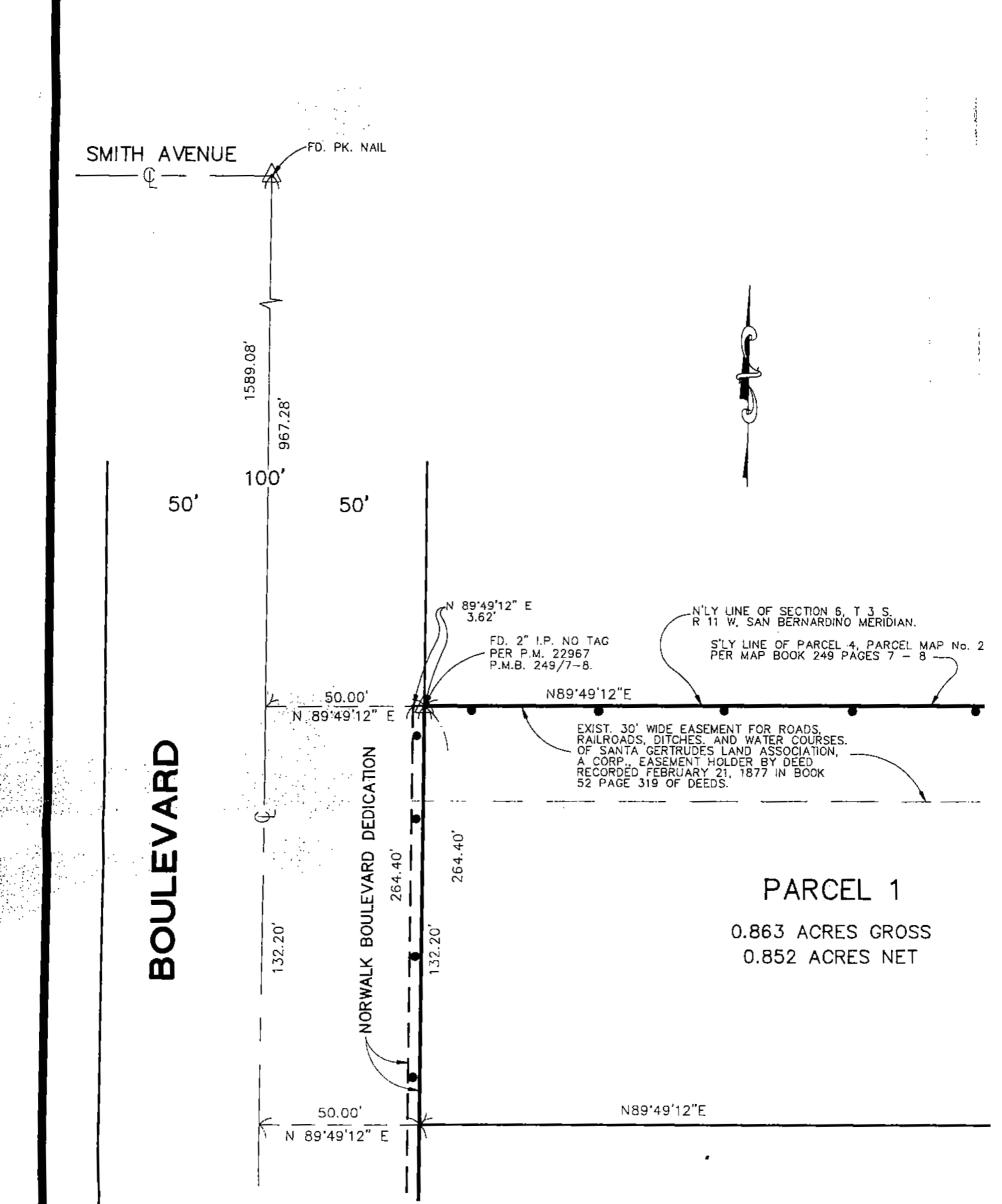


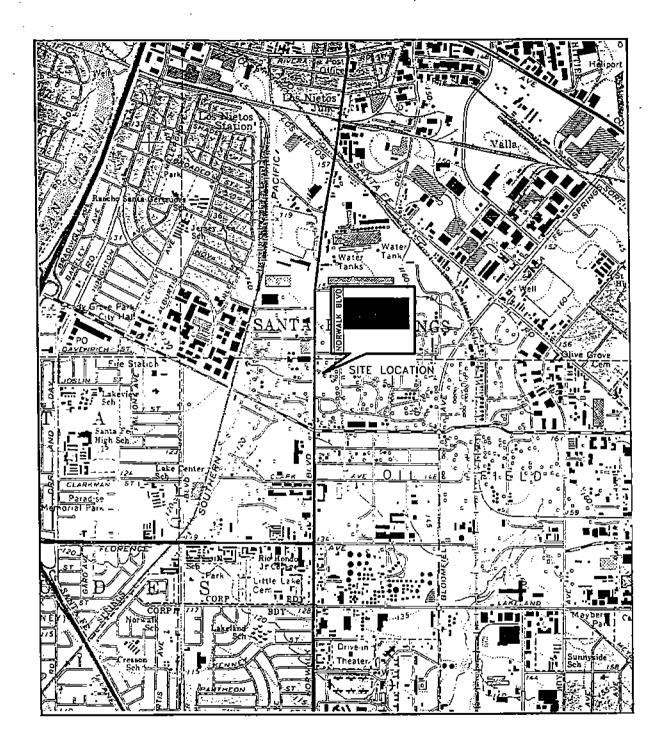
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PARCEL MAP No

IN THE CITY OF SANTA F COUNTY OF LOS ANGELES, STATE

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UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY, WHITTIER OUADRANGLE, 7.5 MINUTE SERIES (TOPOGRAPH).
WHITTIER, CALIFORNIA (PHOTO REVISED 1981)

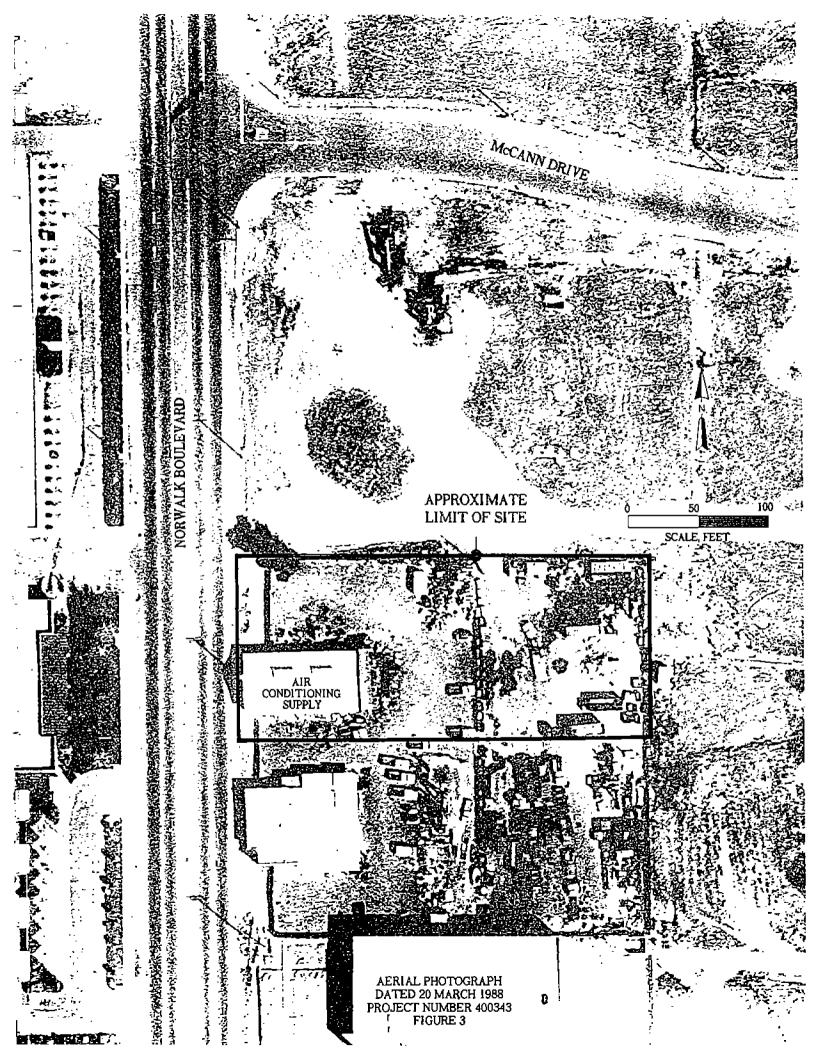
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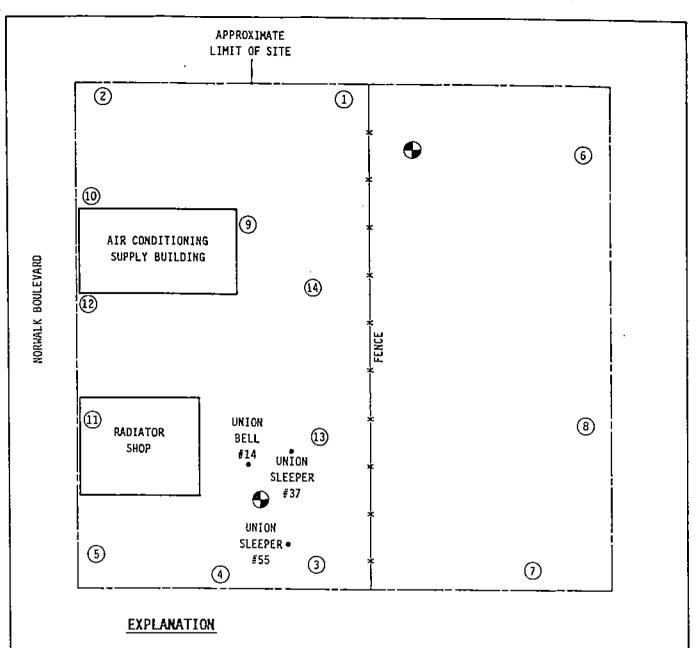


P.O. 80:14766 Long Beach, CA 90803 (310)433-5144

P.O. Bor 81904 Fairbonks, AK, 99708 (907)479-9555 DON MILLER—ATLAS RADIATOR COMPANY
Site Address: 10110 Norwalk Blvd.
Santa Fe Springs, CA
SITE LOCATION MAP

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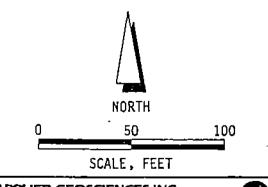
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NOTES:

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- 2) METHANE PROBE AND PROPOSED MONITORING WELL LOCATIONS SUPPLIED BY GEOSCIENCE ANALYTICAL, INC.

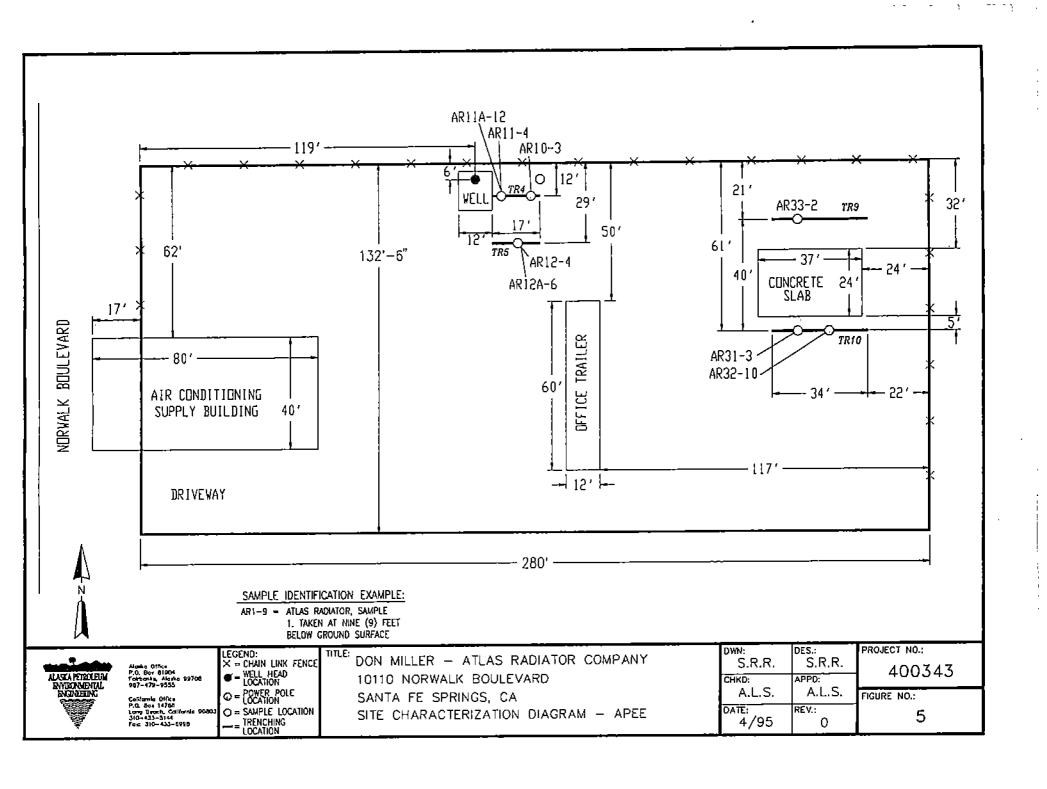


APPLIED GEOSCIENCES INC. Engineering Geology and Hazardous Materials Consultants

METHANE PROBE LOCATIONS

PROJECT NUMBER A881311

FIGURE 4



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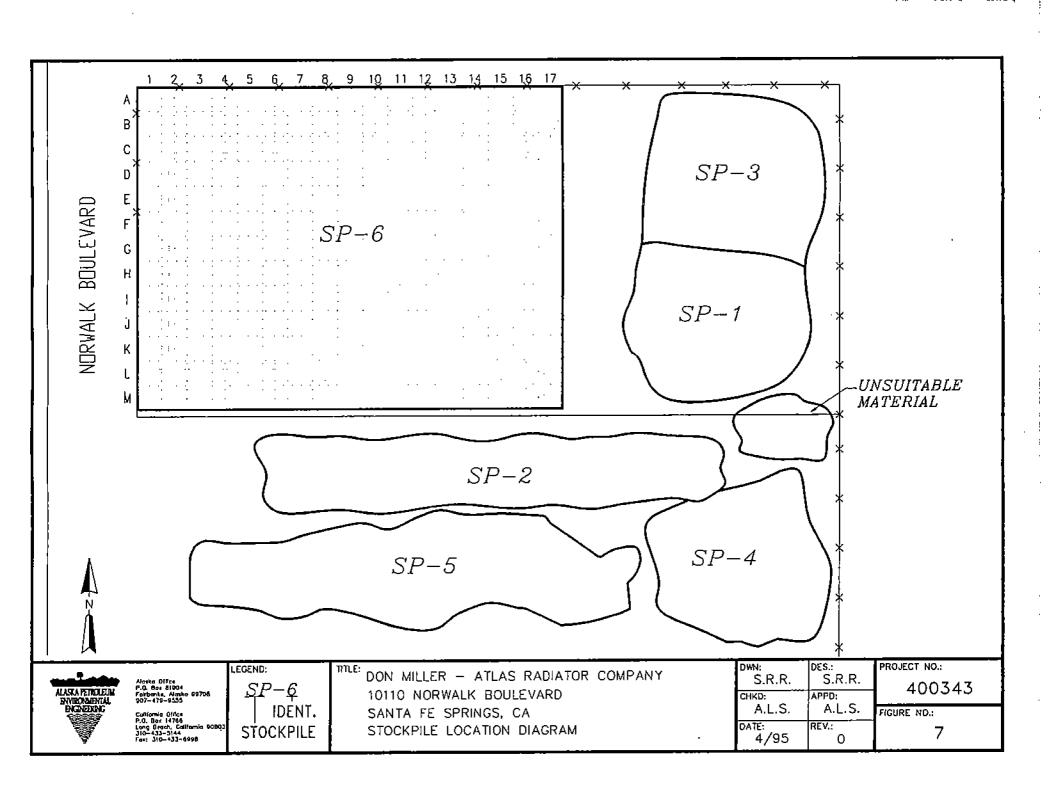
California Office P.O. Box 14766 Long Beaux, California 90503 310-433-5144 Fas: 310-433-6998 TILE: DON MILLER — ATLAS RADIATOR COMPANY

10110 NORWALK BOULEVARD

SANTA FE SPRINGS, CA

SITE GRADING SAMPLING GRID — APEE

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A.L.S.	A.L.S.	FIGURE NO.:
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APEE Site Characterization Results

Sample ID	Sample Depth (feet)	EPA 8015 (mg/kg)	EPA 8010 (mg/kg)	EPA 8020 (mg/kg)	EPA 418.I (mg/kg)	EPA 9045 (pH)	CCR Metals (mg/kg)			
Trench 4 AR-10 AR-11 AR-11A	4 4 Archive 1	ND	ND	ND ND	ND 240	7.5 7.9	BTL BTL			
Trench 5 AR-12 AR-12A	4 Archive 0.5	ND	ND	T=0.089	140	8.7	Pb=66.9			
Trench 9 AR-33	2	ND	ND	ND	470	9.0	Pb=57.4			
Trench 10 AR-31 AR-32	3 10	ND ND	ND ND	ND ND	II ND	9.2 9.5	BTL BTL			
ID = Identification mg/kg = milligrams per kilogram 8015 = Total Fuel Petroleum Hydrocarbons 8010 = Purgable Halocarbons 8020 = Benzene, toluene, xylenes, ethylbenzene CCR Metals = Total Threshold Limit Concentration Metals Pb = Lead ND = Not Detected BTL = Below Threshold Limits										

ALASKA PETROLEUM ENVIRONHENTAL ENGINEERING

P.O. Box 14766 Long Beach, California (213) 433-5144 90803 P.O. Box 81904 Fairbanks, Alaska (907) 479-9555 99708 Project Name Atlas Radiator
Project Number 91-10016
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Vertical Scale 2

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P.O. Box 14766 Long Beach, California (213) 433-5144 90803 P.O. Box 81904 Fairbanks, Alasko (907) 479-9555 99708

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16755 Von Karman Avenue Irvine, California 92714

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	TO:	FROM:
	FAX#: 310-433-6998	Name: Christine Bilello
	Company: Alaska Petroleum Envir	Job/Task: OFRP GW
	Attention: Glann Spillman	Date: 6/13/94
	Description/Title of Document:	dwake contour map and groundwater
	Number of Pages 10, inclu	
	If you do not receive all pages, pla	ease notify us as soon as possible
	Phone: 714	I I
	FAX: 714 Direct Dial Number for Send	4/756-8460 ler: <u>714-752-325</u> 8
42_	DAGOL DIEL TAINDOL TOL GER	
Hard	I copy to follow via: U.S. Mail Federal Express Original not to follow	v
Note	: Hello Glenn-	· :
	Attached is a ground	dwater contour map of the 23 (
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50	rings Oil Field Reclamati	on Project. Per First State
<u>Ba</u>	inke request. I have also:	sent The groundwater analytical
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To	le graph and Rd. (see 2nd	confour map for shatnames.)

DI. rall if any questions. - Phristine Bilelle

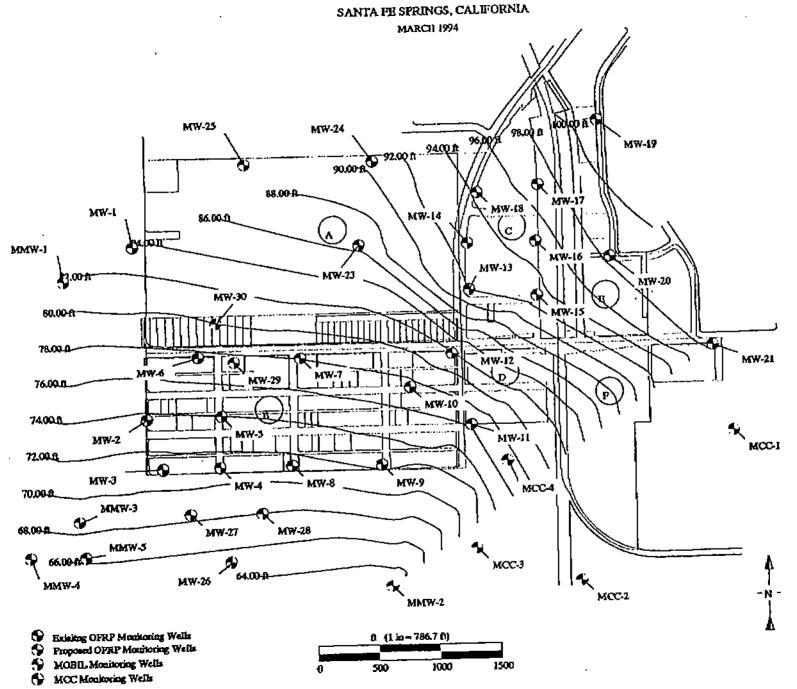
hristine Bilello

714-752-3258

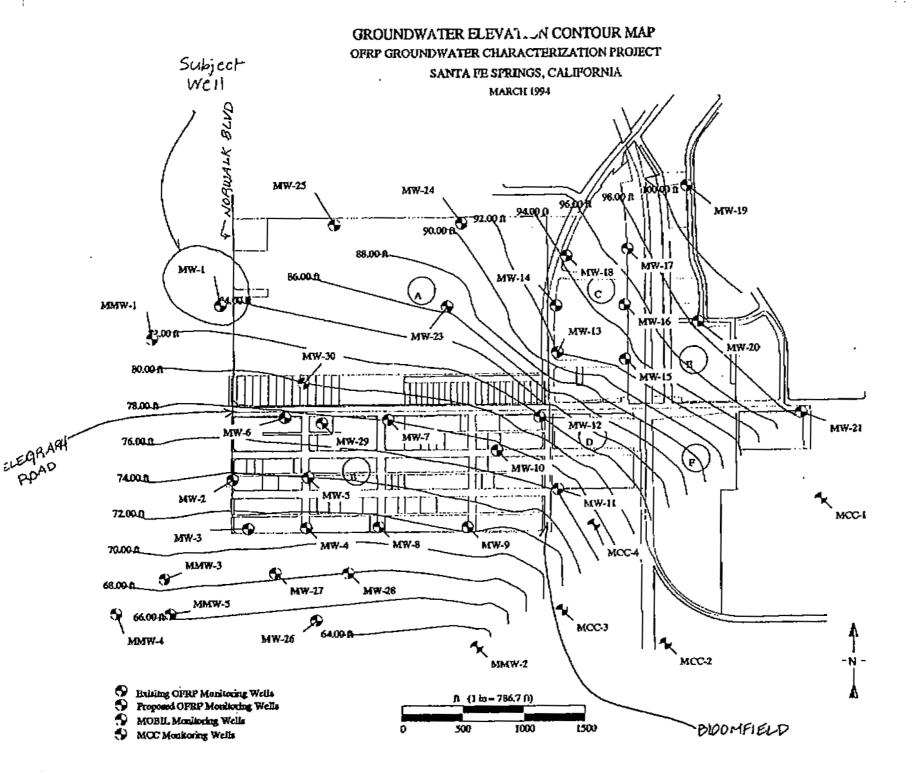
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GROUNDWATER ELEVAN ON CONTOUR MAP OF CROUNDWATER CHARACTERIZATION PROJECT



IRUINE



SUMMARY OF GROUNDWATER MONITORING WELL CONSTRUCTION DETAILS
AND GROUNDWATER ELEVATION DATA
OFRE GROUNDWATER CHARACTERIZATION PROJECT
SANTA FE SPRINGS, CALIFORNIA

112	Desgrade	Elevation	Prior Rusch	And the second second second second		Depth to Ground whiter	(FL above Meso Sea
	MW-1	142.32	55-100	2/2/94 3/1/94	98.45 98.88	59.17 58.77	\$3.15 83.55

Total Petroleum Hydrocarbon (TPH)
Groundwater Analytical Results in parts per million (ppm)
EPA Method 8015 Modified
Oil Field Reclamation Project
Santa Fe Springs, California
March 1994

Monitoring Well ID	Kerceene	ТРН	Gasoline Renge	Dissel Renge
MW-1	0	. 0	0	0 1

Sell Physical Parameter Analytical Results Oil Field Reclamation Project Senta Fe Springs, California March 1994

Monitor Well Designation	Sample Depth Interval (ft)	Lithologic Description and Unified Soil Classification	Hydraulic Conductivity (ft/sec)	Effective Parosity (dimensionless)	Average Moisture Content (dimensionless)	Dry Bulk Density (g/cm²)	Natural Balk Density (g/cm²)	Total Organic Carbon Content (dimensionless)
MW-1	_	-	_	27.3	16.2	-	-	-

JUN 13 '84 11:13 F

FROM MCLAREN HART IRVINE

PAGE.007

California Assessment Manual (CAM) Title 22 Metal Total Threshold Limit Concentration (TTLC) Groundwater Analytical Results in parts per billion (ppb) EPA Method 6010/7000 Series Oit Field Reclamation Project Santa Fe Springs, Califor

Monitoring Well ID	Arsenic	Barkım	Chromium	Zinc	Copper	Lead	Nickel	Vanadium	Selenium	
MW-1	0	40	41	0	0	0	.0	0	. 0	

Semivolatile Organic Compound (SVOC) Groundwater Analytical Results in parts per billion (ppb) EPA Method 625 Oil Field Reclamation Project Santa Fe Springs, California March 1994

Monitoring Well ID	Dimethyl- phthalate	2,4-Dimethyl- phenol	2-Methyl- naphthalene	Pirenal	2-Methyl- phenol	Naphthalene	Bis(2-Ethiyhexyl) phthalate
MW-1	62	0	0	0	0	0	0 (

Volatile Organic Compound (VOC) Groundwater Analytical Results in parts per billion (ppb) EPA Method 624 Oil Field Reclamation Project Santa Fe Springs, California March 1994

Monitoring Well (D	YCE	Acetone	1,1-DCE	Methylene Chloride	1,1-DCA	Ch-1,2-0CE	1,1,1-TCA	PCE	Vinyl Chlorida	Chlorofann	Bromsdichloro methane	omerchio onactremoscho	
MW-t	15	0	0	Ö	D	0	ō	20	0	0	0	0	1

Benzene, Toluane, Ethylbenzene, and Xylene Groundwater Analytical Results In parts per billion (ppb) Oil Field Reclamation Project Santa Fe Springs, California March 1894

	Monitoring Well ID	Benzene	Toluane	Ethylbenzene	M & P Xylone	O-Xylene	
Ì	MW-1	0		14	34	11	L

Table I October 31 - November 1, 1994 Results

Table IA
Off-Site Sample Results

and
Laboratory Analytical Reports

Table I October 31 - November 1, 1994 Results

		1 814 1 2 4 4		<u>.</u>	:	Analysi	st		
Sample	Depth	Number of Discrete	Number of Composite	418.1	7420		8020	(ppb)	
Identification	(ft)	Samples	Samples			В	T	х	E
Composite A	S	3	1	1,250	197	ND	ND	ND	ND
Composite B	S	3	1	720	72	ND	6.9	ND	ND
Composite C	1	3	1	910	1,054	ND	ND	ND	ND
Composite D	1	3	1	480	88	ND	ND	ND	ND
Composite E	2	3	1	460	56	ND	5.4	ND	ND
Composite F	2	3	1	900	70	ND	ND	ND	ND
Composite G	3	3	l	800	82	ND	ND	ND	ND
Composite H	4	3	1	387	172	ND	ND	ND	ND
Composite I	4	3	l	120	223	ND	ND	ND	ND
Composite J	3	3	1	102	33	ND	ND	ND	ND
Composite K	4	3	11	1,920	77	ND	ND	ND	ND
Composite L	s	3	1	77	316	ND	ND	ND	ND
Composite M	2	. 3	1	154	109	ND	ND	ND	ND
Composite N	1	3	1	16	4.5	ND	ND	ND	ND
Composite O	3	3	1	168	31	ИD	ИD	ND	ND
A2-5	5	1	NA	226	21	ND	ND	ND	ND
A8-5	5	I	NA	14	ND	ND	ND	ND	ND
C20-5	5	1	NA	118	20	ND	ND	ND	ND
D10-5	5	i	NA	12	ND	ND	ND	ND	ND
C5-5	5	1	NA	1,760	44	ND	ND	ND	ND
I3-5	5	1	NA	288	75	ND	ND	ND	ND
F16-5	5	1	NA	8.8	ND	ND	ND	ND	ND
G13-5	5	1	NA	7.2	ND	ND	ND	ND	ND
F6-5	5	1	NA	7.2	ND	ND	ND	ND	N

Table I, cont October 31 - November 1, 1994 Results

	-				· · · · · · · · · · · · · · · · · · ·	Analys	is¹	,		
Sample	Depth	Number of Discrete	Number of Composite	418.1	7420	7420 802			0(ppb)	
Identification	(ft)	Samples	Samples			В	T	х	E	
A19-5	5	1	NA	NA	ND	ND	ND	ND	ND	

1 All results are in parts per million, unless stated otherwise

ft = feet

418.1 = Total Recoverable Petroleum Hydrocarbons

7420 = Total lead

8020 = Benzene (B), toluene (T), xylenes (X), ethylbenzene (E)

ppb = parts per billion
S = Surface Sample
ND = Not Detected
NA = Not Analyzed

Table IA Off-Site Sample Results¹

		Analysis						
3.5 3.4.			8020 (ppb)					
Sample Identification	CCR Metals ²	8015	В	T	х	E -		
K5-45	BTL	NA	NA	NA	NA	NA		
K5-E45	Pb @ 210	NA	NA	NA	NA	NA		
USC	BTL	12	ND	6.8	120	50		

¹ All results are in parts per million, unless stated otherwise

ppb = parts per billion

8020 = Benzene (B), toluene (T), xylenes (X), and ethylbenzene (E)

8015 = Total Fuel Petroleum Hydrocarbon - gasoline

BTL = Below Threshold Limits

Pb = Lead

NA = Not Analyzed ND = Not Detected

² Only those results which exceed 10x the STLC action limit are reported

NOV 18 1994 A. P. E. E.

November 10, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project #:

Atlas Radiator

Lab No.:

941103-141/198

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Composite A includes B18-S, A4-S, B10-S Composite B includes C2-S, E20-S, D13-S Composite C includes E7-1, D17-1, C4-1 Composite D includes A6-1, B3-1, B14-1 Composite E includes E2-2A, B16-2, C10-2 Composite F includes A20-2, B6-2, A10-2 Composite G includes A17-3A, B12-3A, A5-3 Composite H includes B20-4, A16-4, B8-4 Composite I includes C19-4, C12-4, D5-4 Composite J includes B4-3, B20-3, C6-3 Composite K includes I10-4, G13-4, F9-4 Composite L includes E5-S, H19-S, H9-S Composite M includes G2-2, E14-2, I17-2 Composite N includes E12-1, F20-1, H5-1 Composite O includes E2-3, H16-3, G6-3

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/ra

Enclosures

Client

Alaska Petroleum Environmental Engineering

Am:

Mr. Glenn Stillman

Client's Project: Atlas Radiator

Date Received: 11/03/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Resalts,	Matrix, Units	DLR	DF.	Analyst Initials
941103-Comp A	Composite A	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	1250	Soil, mg/kg	100	25	MCC/DFC
941103-Сошр В	Composite B	EPA 418.1 (TRPH)	10/31 - 11/01 -9 4	11/10/94	720	Soil, mg/kg	100	25	MCC/DFC
941103-Сошр С	Composite C	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	910	Soil, mg/kg	100	25	MCC/DFC
941103-Comp D	Composite D	EPA 418.1 (TRPH)	10/31–11/01–94	11/10/94	480	Soil, mg/kg	100	25	MCC/DFC
941103-Comp E	Composite E	EPA 418.1 (TRPH)	10/31 - 11/01 -9 4	11/10/94	460	Soil, mg/kg	100	25	MCC/DFC
941103-Сомр F	Composite F	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	900	Soil, mg/kg	100	25	MCC/DFC
941103-Comp G	Composite G	EPA 418.1 (TRPH)	10/31 - 11/01 -9 4	11/10/94	800	Soil, mg/kg	100	25	MCC/DFC
94 1103-Сошр Н	Composite H	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	387	Soil, mg/kg	67	17	MCC/DFC
941103-Comp I	Composite I	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	120	Soil, mg/kg	20	S	MCC/DFC
941103-Совр Ј	Composite J	EPA 418.1 (TRPH)	10/31-11/01 -9 4	11/10/94	102	Soil, mg/kg	20	5	MCC/DFC
941103-Сошр К	Composite K	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	1920	Soil, mg/kg	100	25	MCC/DFC
941103-Comp L	Composite L	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	71	Soil, mg/kg	4	1	MCC/DFC
941103-Comp M	Composite M	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	154	Soil, mg/kg	20	. 5	MCC/DFC
9411'5-Comp N	Composite N	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	16	Soil, mg/kg	4	1	MCC/DFC
Comp O ف9411u	Composite O	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	168	Soil, mg/kg	20	5	MCC/DFC
941103-169	A2-5	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	226	Soil, mg/kg	20	5	MCC/DFC
941103-152	usc	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	16000	Soil, mg/kg	2000	500	MCC/DFC
941103-170	A8 -5	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	14	Soil, mg/kg	4	1	MCC/DFC
94 [103-17]	C20-5	EPA 418.1 (TRPH)	10/31 - 11/01 -9 4	11/10/94	118	Soil, mg/kg	20	5	MCC/DFC
941) 3-172	D10-5	EPA 418.1 (TRPH)	10/31-11/01 -9 4	11/10/94	12	Soil, mg/kg	4	1	MCC/DFC
9411 - 3-173	C5-5	EPA 418.1 (TRPH)	10/31 – 11/01 –9 4	11/10/94	1760	Soil, mg/kg	200	50	MCC/DFC
941103-183	13–5	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	288	Soil, mg/kg	20	5	MCC/DFC
941103-184	F-16-5	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	8.8	Soil, mg/kg	4	1	MCC/DFC
941103-185	G13-5	EPA 418.1 (TRPH)	10/31 - 11/01 -9 4	11/10/94	7.2	Soil, mg/kg	4	I	MCC/DFC
941103-186	F6-5	EPA 418.1 (TRPH)	10/31-11/01-94	11/10/94	7.2	Soil, mg/kg	4	1	MCC/DFC

MDL	= Method Detection Limit
ND	= Not Detected (Below DLR)
DLR	= MDL X Dilution Factor
DF	- Dilution Factor

Reviewed by Supervisor.

Reviewed/Approved By:

Laboratory Director

The second of th

Client:

Alaska Petroleum Environmental Engineering

Attn:

Mr. Glenn Stillman

Client's Project:

Atlas Radiator

Date Received: Date Digested: 11/03/94 11/10/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results	Matrix, Units	DLR	DF	Analyst I-liials
41103-168	A19-5	EPA 7420 (Lend)	11/01/94	11/10/94	ND	Soll, mg/kg	2.4	1	CDR
41103-169	A2-5	EPA 7420 (Lend)	11/01/94	11/10/94	21	Soil, mg/kg	2.4	1	CDR
941103-170	A8-5	EPA 7420 (Lead)	11/01/94	11/10/94	סמ	Soll, mg/kg	2.4	1	CDR
941103- <u>171</u>	C20-5	EPA 7420 (Lead)	10/31/94	11/10/94	20	Soll, mg/kg	2.4	1	CDR
941103-172	D10-5	EPA 7420 (Lead)	10/31/94	11/10/94	ND	Soll, mg/kg	2.4	1	CDR
41103-173	C5-5	EPA 7420 (Le2d)	10/31/94	11/10/94	44	Soil, mg/kg	2.4	1	CDR
<u>41103-183</u>	13-5	EPA 7420 (Lend)	10/31/94	11/10/94	75	Soil, mg/kg	2.4	1	CDR
941103-184	F-16-5	EPA 7420 (Lead)	10/31/94	11/10/94	ND	Soil, mg/kg	2.4	1	CDR
41103-185	G13-5	EPA 7420 (Lend)	10/31/94	11/10/94	ND	Soll, mg/kg	2.4	1	CDR
941103-186	F6-5	EPA 7420 (Lead)	10/31/94	11/10/94	ND	Soil, mg/kg	2.4	1	CDR
041103-Comp A	Composite A	EPA 7420 (Lead)	11/01/94	11/10/94	197	Soil, mg/kg	2.4	1	CDR
041103-Comp B	Composite B	EPA 7420 (Lead)	11/01/94	11/10/94	72	Soil, mg/kg	2.4	1	CDR
941103-Comp C	Composite C	EPA 7420 (Lead)	11/01/94	11/10/94	1054	Soil, mg/kg	4.8	2	CDR
94110 - Comp D	Composite D	EPA 7420 (Lead)	11/01/94	11/10/94	88	Soil, mg/kg	2.4	1	CDR
941103-Comp E	Composite E	EPA 7420 (Lead)	11/01/94	11/10/94	56	Soil, mg/kg	2.4	1	CDR
941103-Comp F	Composite F	EPA 7420 (Lead)	11/01/94	11/10/94	70	Soil, mg/kg	2.4	1	CDR .
941103-Comp G	Composite G	EPA 7420 (Lead)	11/01/94	11/10/94	82	Soil, mg/kg	2.4	1	CDR
941105-Comp H	Composite H	EPA 7420 (Lend)	11/01/94	11/10/94	172	Soll, mg/kg	2.4	1	CDR
941103-Comp I	Composite I	EPA 7420 (Lead)	10/31/94	11/10/94	223	Soll, mg/kg	2.4	1	CDR
941103-Comp J	Composite J	EPA 7420 (Lead)	10/31/94	11/10/94	33	Soil, mg/kg	2.4	1	CDR
941103-Comp K	Composite K	EPA 7420 (Lead)	10/31/94	11/10/94	77	Soil, mg/kg	2.4	1	CDR
94110; Comp L	Composite L	EPA 7420 (Lead)	10/31/94	11/10/94	316	Soil, mg kg	2.4	1	CDR
941105-Comp M	Composite M	EPA 7420 (Lead)	10/31/94	11/10/94	109	Soll, mg/kg	2.4	I	CDR
941103-Comp N	Composite N	EPA 7420 (Lead)	10/31/94	11/10/94	4.5	Soll, mg/kg	2.4	1	CDR
941103-Comp O	Composite O	EPA 7420 (Lead)	10/31/94	11/10/94	21	Soll, mg/kg	2.4		CDR

MDL = Method Detection Limit
ND = Not Detected (Below DLR)

DLR = MDL X Dilution Factor DF = Dilution Factor

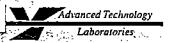
Reviewed by Supervisor:

Reviewed/Approved By:

Michael A Vertrott

Michael A. Yartzoll
Laboratory Director

Date: 11/1/94



Client:

Alaska Petroleum Environmental Englneering

Attn:

Mr. Glenn Stillman

Cllent's Project: Atlas Radiator

Matrix:

- Soll

Analyst Initials: RR

Lab No.:	Sample ID:	Benze	ene	Tolu	enė	Ethylbe	nzene	Xylenes	(total)	Dilution
		Results, ug/kg	DLR, ug/kg	Factor						
941103-Comp "O"	Composite O	ND	5	ND	5	ND		םא	5	
941103-168	A19-5	ND		ND ND	5	ND	5	פא		
103-169	A2-5	ND	5	ND	5	ND ND	5	ND	5	
y411 <u>0</u> 3-170	A8-5	ND	5	ND	5	ND	5	ND	5	
941103-171	C20-5	ND	5	ND	5	ND	5	ND	5	
941103-172	D10-5	ND ND	5	ND ND	5	ND	5	ND	5	
941103-173	C5-5	ND	5	ND ND	5	ND	5	ND	5	
941103-183	t3-5	ND ND	5	ND	5	ND	5	ND	5	
941103-184	F-16-5	ND	5	ND	5	ND	5	םא		
941103-185	G13-5	ND		ND	5	ND		ND	5	_
9411 <u>03-18</u> 6	F6-5	NDND	5	ND	5	ND	5	מא	5	
										_
								. <u>-</u>		:
	1									

JL - Method Detection Limit ND = Not Detected. (Below DLR) DLR = MDL X Dilution Factor

Reviewed by Supervisor:

Reviewed/Approved By:

Laboratory Director

11-14-94 Date:

Date Sampled:

Date Received:

Date Analyzed:

10/31-11/01/94

11/03/94

11/09/94



Client:

Alaska Petroleum Environmental Engineering

Attn:

Mr. Glenn Stillman

Client's Project: Atlas Radiator

Matrix: Soil Date Sampled:

10/31-11/01/94

Date Received: Date Analyzed: 11/03/94 11/09/94

Analyst initials: RR

Lab No.:	Sample ID:	Benze	enė	Tolu	ene	Ethylbe	nzene	Xylenes	(total)	Dilution
··		Results, ug/kg	DLR, ug/kg	Results, ug/kg	DLR, ug/kg	Results, ug/kg	DLR, ug/kg	Results, ng/kg	DLR, ug/kg	Factor
fethod Blank	NA	םא	5	ND ND	5	ND	<u>s</u>	ND	5	
41103-Comp "A"	Composite A	סא	5	DN	5	מא	5	ND	5	·
.103-Comp "B"	Composite B	ND	5	6.9	5	ND	s	ND	5	
41103-Comp "C"	Composite C	סא	5	ND	5	סא	5	ND	5	
41103-Comp "D"	Composite D	ND ND	5	ND	5	ND	5	ND	5	
41103-Comp "E"	Composite E	ND	5	5.4	5	ND	5	ND	5	
41103-Comp "F"	Composite F	ND	5	ND	5	ND	5	ND	5	
41103-Comp "G"	Composite G	ND	5	ND	5	ND ND	5	ND	5	
41103-Comp "H"	Composite II	ND	5	ND	s	ND	.5	ND	5	
11103-Comp_"I"	Composite I	ND	5	ND	5	ND	5	ND	5	
1103-Comp "J"	Composite J	ND	5	ND	5	ND	5	ND	5	
1103-Comp "K"	Composite K	מא	5	מא	5	ND	5	ND ND	5.	
1103-Comp "L"	Composite L	מא	5	ND	5	ND	. 5	ND	5.	
1103-Comp "M"	Composite M	מא	5	ND	5	ND ND	5	ND	5	
'1103-Comp "N"	Composite N	ND	5	ND	5	ND	5	ND	5	

-DL - Method Detection Limit

ND - Not Detected. (Below DLR)

DLR = MDL X Dilution Factor

Reviewed/Approved By:

Michael A. Yartzoff Laboratory Director

11-10-94 Date:



Client: Alaska Petroleum Environmental Engineering

Attn: Mr. Glenn Stillman

Date Sampled: Date Received: 11/01/94

Date Analyzed:

11/03/94 11/10/94

Client's Project: Atlas Radiator

Matrix: Soil

METHOD 8015M/BTEX

	,	8015M		<u></u>			BTE:	<u>x</u>]
Lab No.:	Sample ID:	TPH (Gas)		Benzen	<u>c </u>	Tolucr	1e	Ethylber	nzene	Xylenes (t	o(ral)	Dilution
<u> </u>	<u> </u>	Results, mg/kg	DLR, mg/kg	Results, ug/kg	DLR, ug/kg	Results, ug/kg	DLR, ug/kg	Results, ug/kg	DLR, ug/kg_	Results, ug/kg	DLR, ug/kg	Factor
lethod Blank	NA .	ND.	1	ND	5	ND	5	D/N	5	ND	5	·
1103-152	USC	12*	1	ND ND	5	6.8	5	50	5	120	5	
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MDL = Method Detection Limit

ND - Not Detected, (Below DLR)

DLR - MDL X Dilution Factor

 \mathcal{H} . The sample contains compounds in the heavy end of the gasoline range.

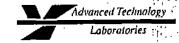
Reviewed by Supervisor:

Reviewed/Approved By:

Michael A, Yartzoff

Laboratory Director

Date: //- 10-94



Client: Alaska Petroleum Environmental Engineering

Attn: Mr. Glenn Stillman

Client's Project:

Atlas Radiator

Date Received:

11/03/94

Matrix:

Soil

Units:

mg/kg

Digestion Method:

3050

EPA Method 6010 (CCR Metals)

Lab No.:		941103-150	941103-151	941103-152	
Client Sample	LD.:	K5-45	K5-E45	USC	
Date Sampled:		11/01/94	11/01/94	11/01/94	
Date Dige	sted:	11/10-11/94	11/10-11/94	11/10-11/94	
				11/10-11/94	
Analyst Ini		CDR	CDR	CDR	
Dilution Fa		1_	1	1	
	DLR		1 7	-	RESULTS
Antimony	4	ND	ND	ND	
Arsenic	2	28	ND	ND	
Barium	0.5	79	53	54	
Beryllium	0.5	ND	ND	ND	
Cadmium	0.5	ND ND	0.56	ND	
Cbromium ***	0.5	6.8	7.4	5.0	
Cobalt	0.5	3.5	3.6	5.6	
Соррег	0.5	4.6	9.7	8.5	
Lead	1	ND	210	12	<u> </u>
Mercury **	0.50	ND	ND	ND	
Molybdenum	1	ND	ND	ND	
Nickel	1	1.7	5.6	3.7	
Selenium	2	- ND	ND	ND	
Silver	0.5	ND	ND	ND	
Thallium_	1 1	ND.	ND	ND	
Vanadium	0.5	11	14	14	
Zinc	0.5	18	63	31	

MDL = Method Detection Limit

ND - Not Detected (Below DLR).

DLR - MDL X Dilution Factor

Only listed constituents designated with TTLC an STLC under CCR Title 22

** Analysis by EPA Method 7471, Factor is 2

From Title 22 - If the soluble chromium, as determined by the TCLP set forth in Appendix 1 of Chapter 18 of this division (4), less than 5 mg/l, and the soluble chromium, as determined by the procedure set forth in Appendix II of chapter 11, equals or exceeds 560 mg/l and the waste is not otherwise identified as a RCRA hazardous waste pursuant to section 6626.100, then the waste is a non-RCRA hazardous waste.

Reviewed by Supervisor.

Rasing MAnnesyed Res

Michael A. Yartzell
Laboratory Director

Date: //-//- 70



Spike Recovery and RPD Summary Report

Method:

418.1

4314-S2

Date:

11/10/94

MCC/DFC

Sample ID:

941031-191

Matrix:

SOIL

4			,		· · ·					 	1				
ANALYTE	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK_ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	DLR_
TRPH	те/Кд	5		100	ND	ND	40	40	40	100	100	80 - 120	0	20	4
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Approved by:	Chrylde la Rey
	Cheryl Do Los Reyes



Spike Recovery and RPD Summary Report

· Method:

7471

KS/OL

Analyst: Data File: 4315 - 4

Marian - Marian parent par 1920 at 1920 .

Date:

11/11/94

Analyte:

Mercury

Matrix:

Soil

SAMPLE	ם טאזד:	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS_REC_	%MSD_REC	% REC Limit	RPD	RPD_Limit_	_DLR_
941108-122	mg/kj	2.5	2.5	99	מא	ND .	2.5	2,2	2.1	86	82	55 - 120	4	30	0.50
941104-064				99	ND	מא	2.5	2.4	2.4	94	97	55 - 120	3 .	30	0.50
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Approved by: Cheryl Do Los Reyes Inorganics Supervisor

Date: 11/16/94



Spike Recorry and RPD Summary Report SOIL

Method : C:\HPCHEM\5\METHODS\8025EXT.M

Title : EPA M8015 (Gasoline) / EPA 8020 (BTEX)
Last Update : Wed Nov 09 18:22:30 1994

Response via: Initial Calibration

Non-Spiked Sample: V1288.D

Spike Spike

Sample Duplicate Sample

File ID : VS1435.D VS1436.D

Sample : 941104-065 5gms MS BTEX 941104-065 5gms MSD BTEX

Acq Time: 10 Nov 94 04:34 AM 10 Nov 94 05:03 AM

Compound	Sample Conc	Spike Added	_	Dup Res	Spike %Rec	Dup %Rec	RPD	QC RPD	Limits % Rec
Benzene Toluene	ND ND	50 50				98 96	3 6	21 21	66-142 59-139

Reviewed and Approved by:

Scott Stratton Organics Supervisor Date: 11-10-94

Spike Recovery and RPD Summary Report - SOIL (ug/kg)

Method

: C:\HPCHEM\5\METHODS\8021.M

Title

: 8010/8020 & 601/602

Last Update : Wed Nov 09 15:40:42 1994

Response via: Initial Calibration

Non-Spiked Sample: VC1160.D

Spike Sample Spike

Duplicate Sample

VS1191.D

VS1192.D

Blank Soil MSD BTEX

Sample: Acq Time:

Blank Soil MS BTEX 09 Nov 94 11:45 PM

10 Nov 94 00:21 AM

Compound

Sample Spike Spike Dup Spike Dup Conc Added Res Res %Rec %Rec

RPD

0.0

32.1 102 Toluene #2 30 30.5 31.4 105

Reviewed and Approved by:

Scott Stratton Organics Supervisor Date: 11-10-94

Spike Recovery and RPD Summary Report

Method:

6010

Date Analyzed: 11/10/94

Analyst:

CDR/OL

Date Digested: 11/09/94

QA File:

4314 - 1

Sample ID:

941108 - 014

Data File:

41110 - 1

Matrix:

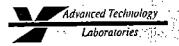
Soil

(Digestion Factor: 100/2)

						(Digestion Pacit	01. 100/2					
ANALYTE	UNITS	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	MDL
Antimony	nig/kg	ND	ND	5.0	3.4	3.1	68	62	55 - 120	9	30	4.0
Arsenic	mg/kg	ND	ND	5.0	4.9	5.0	98	100	55 - 120	2	30	2.0
Barium	mg/kg	ND	5.3	5.0	11	9.7	114	88	55 - 120	26	30	0.5
Beryllium	mg/kg	ND	ND	5.0	4.5	4.7	90	94	55 - 120	4	30	0.5
Cadmium	mg/kg	ND	ND	5.0	5.0	5.1	100	102	55 - 120	2	30	0.5
Chronium	mg/kg	ND	1.1	5.0	6.0	6.1	98	100	55 - 120	2	30	0.5
Cobalt	mg/kg	ND	0.37	5.0	5.4	5.4	101	101	55 - 120	0	30	0.5
Соррег	nig/kg	ND	0.74	5.0	5.5	5.5	95	95	55 - 120	0	30	0.5
Lead	mg/kg	ND	ND	5.0	4.8	4.8	96	96	55 - 120	0	30	1.0
Molybdenum	mg/kg	ND	ND	5.0	4.6	4,6	92	92	55 - 120	0	30	1.0
Nickel	mg/kg	ND	1.3	5.0	6,1	6.1	100	100	55 - 1 <u>2</u> 0	0	30	1.0
Selenium	mg/kg	ND	ND	5.0	4.6	4.8	92	96	55 - 120	4	30	2.0
Silver	mg/kg	ND	ND	5.0	2.6	2,7	52	54	50 - 120	. 4	30	0.5
Thallium	mg/kg	ND	ND	5.0	4.5	4.4	90	88	55 - 120	0	30	1.0
√anadium	mg/kg	ND	1.3	5.0	6.0	6.1	94	96	55 - 120	2	30	0.5
Zinc	mg/kg	ND	1.1	5.0	6.2	5.2	102	82	55 - 120	22	30	0.5
					<u> </u>							

Approved by: Cheryl De Los Reyes
Inorganics Supervisor

Date: 11/10/94



CHAIN OF CUSTODY TURNAROUND TIME: TYPE **ANALYSIS** P.O. Bax 14766 P.O. Box 81904 (Soil) Water ENVIRONMENTAL ENGINEERING Long Beach, CA Fairbanks, AK 9070B 80803 (310) 433-5144 (907) 479-9555 FAX (310) 433-699B Containek (Glass Sample Matrix PROJECT NO. PROJECT NAME SAMALER: [Signature] adiator Atlas 400342 SAMPLE 1D DATE TIME SPECIAL INSTRUCTIONS TO LABORATORY 11/1/94 'own Dike Compost K Says. (=)0~ 0 13 (E) Sayl Lowposile Mho N17-(41 TOTAL NUMBER OF CONTAINERS DATE/TIME RELINQUISHED BY: (Signature) RECEIVED BY: (Signature) RELINGUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) 11/3/97 RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) RECEIVED FOR LAB BY: (Signature) METHOD OF SHIPMENT: SHIPPED BY: (Signature) COURIER (Signature) DATE/TIME Puri hommand

•			· · · · · 	TURNAROUND TIM	E:	TY	PE					ANAL	.YSIS				
ALASKA PETROLEUM ENVIRONMENTAL ENCINEERING PROJECT NO.	1 // 1	P.O. Box 14788 Long Beach, CA . 90803 (310) 433-5144 FAX (310) 433-6998 T NAME	P.O. Bax 81904 Fairbanks, AK 90708 (907) 479-9555	J duy P/Q SAMPLER: Isignature		Container (Glass, SS, Brass)	Sample Matrix (Soil / Water)	////	ica Mutols The	+0, F/8920 cours							
SAMPLE ID DATE	TIME		SPECIAL INSTRUCT	IONS TO LABORATO	RY			ر.	7						!		
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REUNQUISHED BY: (Signatur	a)	DATE/TIME	RECEIVED 8Y: (Signate	Ura]	RELINQUISHED BY: (Sign	nature)			DATE/1	IWE	RECEIV	ED BY: {	Signature				
METHOD OF SHIPMENT:		·	SHIPPED BY: (Signatur	ol	COURIER (Signature)				RECEIV	ED FOR	LAB BY	(Signatu	ra)		DATE	TIME	prj

CHAIN OF CUSTODY TURNAROUND TIME: TYPE **ANALYSIS** Brass) P.O. Box 14766 P.O. Box 81904 Semple Matrix (Soil) Water) ENVIRONMENTAL ENGINEERING Long Beach, CA Fairbanks, AX 90708 90803 (907) 479-9555 (310) 433-5144 FAX (310) 433-6998 P/Q Containe (Glass) PROJECT NAME PROJECT NO. SAMRLER: (Signature) 20/5 adiator Atlas 400342 SAMPLE ID DATE TIME SPECIAL INSTRUCTIONS TO LABORATORY 1////94 LONDOSI 18 9 0 same 10 mposite (10-) TOTAL NUMBER OF CONTAINERS DATE/TIME RECEIVED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) REUNQUISHED BY: [Signature] RELINQUISHED BY: (Signature) 11/3/94 RELINGUISHED BY: [Signature) DATE/TIME RECEIVED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) RELINGUISHED BY: [Signature] DATE/TIME/1/3/9-1 COURTER (Signature) RECEIVED FOR LAB BY: (Signature) METHOD OF SHIPMENT: SHIPPED BY: (Signature) WKIN 12:45 P hower on 100

CHAIN OF CUSTODY **TURNAROUND TIME: ANALYSIS TYPE** Bress) 5 duy ALASKA PETROLEUM ENVIRONMENTAL ENCINEERING P.O. Box 14766 P.O. Box 81904 Sample Matrix (Sail) Water) Falrbanks, AK Long Beach, CA 9070B 80803 new (f, (310) 433-5144 [907] 479-955B FAX (310) 433-6998 P/Q Containex (Gless) PROJECT NAME PROJECT NO. SAMRLER: [Signatura] adiator 40034.a SAMPLE ID DATE TIME SPECIAL INSTRUCTIONS TO LABORATORY A12-3A 11/1/94 5 (omposite , W/W A5-3 B2W-4 composi 4 1WKV A16~4 A19.5 0 D A8-5 TOTAL NUMBER OF CONTAINERS DATE/TIME DATE/TIME RECEIVED BY: (Signature) RECEIVED BY: (Signatura) RELINQUISHED BY: [Signature] REUNOVISHED BY: (Signature) RELINQUISHED BY: (Signature) DATE/TIME RELINGUISHED BY: [Signature] DATE/TIME RECEIVED BY: (Signature) RECEIVED BY: [Signature] RECEIVED FOR LAB BY: (Signature) DATE/TIME SHIPPED BY: (Signature) COUNTER (Signature) METHOD OF SHIPMENT: Konowall 11/3/94

CHAIN OF CUSTODY TURNAROUND TIME: TYPE **ANALYSIS** 5 day for newlfs Brass) P.O. Box 14786 P.O. Box 81904 Sample Matrix (Soil) Water) Fairbanks, AK Long Beach, CA ENVIRONMENTAL ENGINEERING B0B03 90708 (310) 433-5144 (907) 479-9555 FAX (310) 433-6998 Conteiner (Glass), PROJECT NO. PROJECT NAME SAMRLER: (Signature) Atlas adiaton 102 400342 SAMPLE ID DATE TIME SPECIAL INSTRUCTIONS TO LABORATORY (30-5 10/31/99 DW:5 گ 019-4 10 mosite in to Sample CILLY 1320-3 TOTAL NUMBER OF CONTAINERS DATE/TIME RECEIVED BY: (Signature) RELINGUISHED BY: (Signature) DATE/TIME RECEIVED BY: (Signature) RELINQUISHED BY: (Signature) 11/3/94 RELINQUISHED BY: (Signature) DATE/TIME RECEIVED BY: [Signature] RECEIVED BY: (Signature) RELINQUISHED BY: (Signature) DATE/TIME RECEIVED FOR LAB BY: (Signature) DATE/TIME METHOD OF SHIPMENT: SHIPPED BY: [Signature] COURIER (Signature) WKK W

CHAIN OF CUSTODY TURNAROUND TIME: TYPE **ANALYSIS** Brass) P.O. Box 14788 P.O. Box 81904 Sample Matrix (Soil) Water) ENVIRONMENTAL ENCINEERING Felrbanke, AK Long Beach, CA 90708 80003 6.43 (907) 478-0555 (310) 433-6144 FAX (310) 433-8998 P/Q Container (Glass) PROJECT NAME PROJECT NO. SAMALER: (Signature) adiator 400342 DATE SAMPLE ID TIME SPECIAL INSTRUCTIONS TO LABORATORY 1/2/31/94 7.10-4 613-4 of icomma) m po Ð mo (0 0 F9.4 OKID 0830 ()\(\frac{1}{2}0\) 0830 E5-Composite Sauple 0 **TOTAL NUMBER OF CONTAINERS** DATE/TIME **DATE/TIME** RECEIVED BY: (Signature) REUNQUISHED BY: (Signature) RECEIVED BY: (Signature) RELINGUISHED BY: (Signature) 11/3/97 REUNQUISHED BY: (Signature) DATE/TIME DATE/TIME NECEIVED BY: (Signature) RELINGUISHED BY: (Signature) RECEIVED BY: [Signature] METHOD OF SHIPMENT: SHIPPED BY: (Signature) COURIER (Signature) RECEIVED FOR LAB BY: (Signature) DATE/TIME WKK W

	CHAIN OF	CUSTO	DY		3, 30,					
	TURNAROUND TIME:		TYPE	\top		Α	NALYSIS			
ENVIRONMENTAL Long Beach, CA Feir ENCINTERING 90803	D. Box 81904 pibanke, AK 90708 D7J 470-9555 P/Q	,u lt	Container (Glass, SS, Brass) Sample Matrix (Solty Water)		1-605 MM 776	· P				
PROJECT NO. PROJECT NAME (DD 34) A-19 Undialin	SAMPLER: (Signature)	b	Container (Glass), Sample Matrix (S	1,1,1	1017M	PUP				
SAMPLE ID DATE TIME SPECIA	AL INSTRUCTIONS TO LABORATORY	,	΄ ΄΄	1-3	20					ر
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66-3 1 5) .	$\sqrt{4}$							
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RELINQUISHED BY; (Signature) DATE/TIME RECEIV	VED BY: [Signature]	RELINGUISHED BY: (Signal	lura)		DATE/TIME	RECEIVED E	Y: (Signature)			
RELINQUISHED BY: (Signature) DATE/TIME RECEIV	VED BY: (Signature)	RELINGUISHED BY: (Signal	(ure)		DATE/TIME	RECEIVED 8	Y: (Signature)			
METHOD OF SHIPMENT: SHIPPEI	SHIPPED BY: [Signature] COURIER (Signature)					LAB BY: ISI	gneture)	<u></u>	DATE/I	rime 194 12:4

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Table II Asphalt vs. Soil Lead Analysis

and
Laboratory Analytical Reports

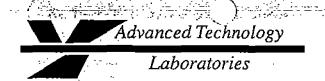
Table II Asphalt vs. Soil Lead Analysis

		Analysis (ppm)					
			7420				
Sample Identification	Material Type	418.1	Soil	Asphalt			
Composite A	Soil/Asphalt	1,230	95	42			
Composite C	Soil/Asphalt	NA	248	83			
Composite D	Soil/Asphalt	NA	95	25			
Composite G	Soil/Asphalt	NA	106	64			
Composite H	Soil/Asphalt	NA	154	49			
Composite I	Soil/Asphalt	NA	395	50			
Composite K	Soil/Asphalt	1,00	132	22			
Composite L	Soil/Asphalt	NA	56	42			
Composite M	Soil/Asphalt	NA NA	104	113			
C5-5	Soil	1,080	NA	NA			

ppm = parts per million NA = Not Analyzed

418.1 = Total Recoverable Petroleum Hydrocarbons

7420 = Total lead



NOV 28 1994 A. P. E. L.

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P. O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400342 Lab No.: 941103-141/198

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

The sample(s) arrived chilled, intact, with a chain of custody record attached.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff.

Laboratory Director

MAY/cb

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar on wishs. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purpose without authorization is prohibited,



MEMORANDUM (via facsimile)

Date:

November 15, 1994

To:

Maria/Maribel - Advanced Technology Laboratory, Inc.

From;

R. Gleon Stillman

Re:

Atlas Radiator

P.O.#:

400342

As per my conversation with Mike Yartzoff, please re-analyze the following samples on a 24 hour priority rush TAT; all samples are to be sieved prior to analysis (200 mesh) to remove any asphalt pieces. Fax results, Thanks.

Lab No.	Sample ID	Analysis (TRPH and lead); Material Type
941103-Comp A	Composite A	418.1 on soil; 7420 on soil and aspiralt
941103-Comp C	Composite C	7420 on soil and asphalt chunks
941103-Comp D	Composite D	7420 on soil and asphalt chunks
941103-Coam G	Composite G	7420 on soil and asphalt chunks
941103-Comp H	Composite H	7420 on soil and asphalt chunks
941103-Comp I	Composite 1	7420 on soil and asphalt chunks
941103-Сопр К	Composite K	418.1 on soil; 7420 on soil and asphalt chunks
941103-Comp L	Composite L	7420 on soil and asphalt chunks
941103-Соптр М	Composite M	7420 on soil and asphalt chunks
941103-173	C5-5	418.1 on soil

Alaska Office 907•479-9555 P.O. Box 81904 Fairbanks, Alaska 99708

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California Office 310 • 433 - 5144 FAX 310 • 433 - 6998 P.O. Box 14766 Long Beach, California 90803

400343/ATILmam

Client:

Alaska Petroleum Environmental Engineering

Lab No.:

See Below

Attn:

Mr. Glenn Stillman

Date Digested:

11/16/94

Date Analyzed:

11/16/94

Project:

Atlas Radiator, 400342

Matrix:

Soil (< 20 mesh)

		EPA Method 7420 (Lead)		
Lab No.	Sample ID	Results, mg/kg	DLR, mg/kg	Factor
941103-Comp A	Comp A	95	2.4	1
941103-Comp C	Сотр С	248	2.4	1
941103-Comp D	Comp D	95	2.4	1
941103-Сотр G	Comp G	106	2.4	1
941103-Comp H	Comp H	154	2.4	1
941103-Сотр І	Comp I	395	2.4	1
941103-Сотр К	Comp K	132	2.4	1
941103-Comp L	Comp L	56	2.4	1
941103-Сотр М	Сотр М	104	2.4	1
941103–173	C5-5	6.1	2.4	1
<u> </u>	<u> </u>			

MDL = Method Detection Limit ND = Not Detected. (Below DLR)

DLR = MDL X Factor

Reviewed/Approved By:

Michael A. Yartzoff

Date: 11/2 + 9/9 +

Laboratory Director

The cover letter is an integral part of this analytical report.

Client:

Alaska Petroleum Environmental Engineering

Lab No.:

See Below

Atta:

Mr. Glenn Stillman

Date Digested: 11/16/94

Date Analyzed: 11/16/94

Project:

Atlas Radiator, 400342

Matrix:

Asphalt like material (> 20 mesh)

		EPA Method 7420 (Lead)		
Lab No.	Sample ID	Results, mg/kg	DLR, mg/kg	Factor
Asphalt-Comp A	Comp A	42	2.4	1
Asphalt-Comp C	Comp C	83	2.4	1
Asphalt-Comp D	Comp D	25	2.4	1
Asphalt-Comp G	Сотр G	64	2.4	1
Asphalt-Comp H	Сотр Н	49	2.4	1
Aspbalt-Comp I	Comp I	50	2.4	1
Asphalt–Comp K	Comp K	22	2.4	1
Asphalt-Comp L	Comp L	42	2.4	1
Asphalt-Comp M	Comp M	113	2.4	1
Asphalt–173	C5-5	12	2.4	1

MDL = Method Detection Limit ND = Not Detected. (Below DLR)

DLR = MDL X Factor

Reviewed/Approved By:

Michael A. Yartzoff
Laboratory Director

Date:

11/14/01/

The cover letter is an integral part of this analytical report.

Alaska Petroleum Environmental Engineering

Ain:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400342

Date Received: 11/03/94

Lab No.	Sample 1.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	DLR	DF	Analyst Initials
941103-173	C5-5	EPA 418.1 (TRPH)	10/31/94	11/16/94	1	Soil, mg/kg	100	25	DFC/MCC
941103-Comp A	Comp A	EPA 418.1 (TRPH)	11/01/94	11/16/94	1230	Soil, mg/kg	100	25	DFC/MCC
941103-Comp K	Сотр К	EPA 418.1 (TRPH)	10/31/94	11/16/94	1020	Soil, mg/kg	100	25	DFC/MCC ·
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MDL = Method Detection Limit ND = Not Detected (Below DLR) DLR = MDL X Dilution Factor

DF = Dilution Factor

Reviewed/Approved.By =

Michael A. Yartzoll

Laboratory Director

Spike Recovery and RPD Summary Report

Method: Analyst: 418.1

MCC

Data File: 4318-S Date:

11/14/94

Sample ID:

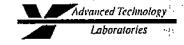
941109-113

Matrix:

SOIL

ANALVIE	TIMETS	I CS Cone	I CS Bee	% Rec	METH BLANK	SPL CONC	SPK ADDED	Me areilla	MSD RESULT	MANS DEC	WMSD BEC	% PECI (RPD I	RPD Limit	DLR
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pproved by:	Olveryl de las Rey
	Cheryl De Los Reyes
	Inorganics Supervisor



Spike Recovery and RPD Summary Report

Date Analyzed: 11/16/94

7420 Method:

Date Digested: 11/16/94

Analyst KS/OL Sample ID:

941103 - 173 ms/msd

4320 - I

Matrix:

Soil

		,				(Digestion Factor	<u>: 100/2)</u>		·			
ANALYTE	UNITS	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	DLR
Lead	mg/kg	סא	1.2	5.0	5.8	6.0	91	95	_55 <u>- 120</u>	5	30	2.4
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Approved by:	Cheryl De Los Reyes Inorganies Supervisor	Rest
	Cheryl De Los Reyes	-0
	Inorganics Supervisor	

Date: 11/16/94



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C4-1-17-5		1 1 1			
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FAX (310) 423-6998 P/Q	Maurix (Sins)	11-6 MK/KB		.
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	<u>, </u>		TURNAROUND TIME	:	TYPE		·····	\ A	NALYSIS	7	I
ALASKA PETROLEUM ENVIRONIMENTAL ENGINEERING	P.O. Box 14766 Long Beach, CA 90603 [310] 433-5144 FAX (310) 433-6000	P.O. Box 81804 Falibanke, AK 90709	5 day	nulti	Container (Glass, SS. Brass)		1.60s	S BIKE			2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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Table III Parking Lot Soil Analysis

and Laboratory Analytical Reports

Table III Parking Lot Soil Analysis

	11	Number of		An	alysis¹	
Sample Identification	Depth (ft)	Discrete Samples	418.1	7420	8020(pph)	CCR Metals
K16-3.5	3.5	1	130	34	ND	BTL
J2135	3.5	1	248	279	ND	Pb
L12-3.5	3.5	1	480	120	ND	Pb
K9-3.5	3.5	1	284	73	ND	Pb
M23-3.5	3.5	1	775	338	ND	Pb
J2-3.5	3.5	1	78	8.5	ND	BTL
M5-3.5	3.5	1	405	277	ND	Рь
Composite 1	s	4	150	70	ИD	Pb
Composite 2	1 P	4	90	3.1	ND	NA
Composite 3	1P	4	35	ND	ND	NA
Composite 4	1P	4	36	6.5	ND	NA

¹ All results are in parts per million, unless stated otherwise

= feet = Total Recoverable Petroleum Hydrocarbons 418.1

= Total lead 7420

= Benzene, toluene, ethylbenzene, and xylenes 8020

= parts per billion ppb

= Only those results which exceed 10 x the STLC action limits are reported CCR Metals

= Not Detected ND

= Below Threshold Limits BTL

РЬ = Lead

= Surface grade S

= 1 foot above surface grade 1**P**

= Not Analyzed NA

ELAP No.: 1838 Exp. Date: 12-31-94

November 10, 1994

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project #:

Atlas Radiator

Lab No.:

941107-213/234

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Laboratory Director

MAY/ra

Enclosures

This cover letter is an integral part of this analytical report.

This report particles only to the complex investigated and dises not necessarily apply to other apparently identical or similar materials. This report is submitted for the cucharine Client

Alaska Petroleum Environmental Engineering

Atm:

Mr. Glenn Stillman

Client's Project: Atlas Radiator

Date Received: Date Digested: 11/07/94 11/10/94

Date Amended:

11/11/94

Lab No.	Sample I.D.	Analysia	Date Sampled	Date Analyzed	Results	Metrix, Units	DLR	DF	Analyst Inifi-ls
941107-213	K16-3.5	EPA 6010 (Lead)	11/04/94	11/10/94	34	Soll, mg/kg	1	1	CDR
941107-214	J21-3.5	EPA 6010 (Lead)	11/04/94	11/10/94	279	Soil, mg/kg	1	1	CDR
941107-215	L12-3-5	EPA 6010 (Lend)	11/04/94	11/10/94	120	Soil, mg/kg	1	1	CDR
941107-216	K9-3.5	EPA 6010 (Lend)	11/04/94	11/10/94	73	Soll, mg/kg	1	1	CDR
941107-217	M23-3.5	EPA 6010 (Lead)	11/04/94	11/10/94	338	Soil, mg/kg	1	1	CDR
941107-218_	J2-3.5	EPA 6010 (Lead)	11/04/94	11/10/94	8.5	Soll, mg/kg	1	1	CDR
941107-219	M5-3.5	EPA 6010 (I =2d)	11/04/94	11/10/94	277	Soil, mg/kg	_1	1	CDR
Comp 1	Composite 1	EPA 6010 (Lead)	11/04/94	11/10/94	70	Soll, mg/kg	1	1	CDR
Comp 2	Composite 2	EPA 6010 (Lead)	11/04/94	11/10/94	3.1	Soft, mg/kg	1	ī	CDR
Comp 3	Composite 3	EPA 6010 (7 *2d)	11/04/94	11/10/94	ИĎ	Soil, mg/kg	1	1	CDR
Comp 4	Composite 4	EPA 6010 (Lead)	11/04/94	11/10/94	6.5	Soil, mg/kg	1	1	CDR
						 			
	-		 						
]	<u> </u>			
							<u> </u>	<u> </u>	

MDL - Method Detection Limit

ND = Not Detected (Below DLR)

DLR = MDL X Dilution Factor

DF - Dilution Factor

Reviewed by Supervisor.

Reviewed/Approved By:

Laboratory Director

The cover letter is an integral part of this analytical report.

Client:

Alaska Petroleum Environmental Engineering

Attn: :

Mr. Glenn Stillman

Client's Project: 400342, Atlas Radiators

Date Received: 11/07/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Unite	DLR	DF	Analyst Initials
941107-213	K16-3.5	EPA 418.1 (TRPH)	11/04/94	11/10/94	130	Soil, mg/kg	20	5	мсс
941107–214	J21-3.5	EPA 418.1 (TRPH)	11/04/94	11/10/94	248	Soil, mg/kg	20	5	мсс
941107-215	L12-3.5	EPA 418.1 (TRPH)	11/04/94	11/10/94	480	Soil, mg/kg	50	12.5	мсс
941107–216	K9-3 <i>.</i> 5	EPA 418.1 (TRPH)	11/04/94	11/10/94	284	Soil, mg/kg	40	10	мсс
941107–217	M23-3.5	EPA 418.1 (TRPH)	11/04/94	11/10/94	775	Soil, mg/kg	50	12.5	мсс
941107–218	J 2-3 .5	EPA 418.1 (TRPH)	11/04/94	11/10/94	78	Soil, mg/kg	10	2.5	мсс
941107-219	M5-3.5	EPA 418.1 (TRPH)	11/04/94	11/10/94	405	Soil, mg/kg	50	12.5	мсс
941107-Comp#1	Composite 1	EPA 418.1 (TRPH)	11/04/94	11/10/94	150	Soil, mg/kg	20	. 5	мсс
941107-Comp #2	Composite 2	EPA 418.1 (TRPH)	11/04/94	11/10/94	90	Soil, mg/kg	20	. 5	мсс
941107-Comp#3	Composite 3	EPA 418.1 (TRPH)	11/04/94	11/10/94	35	Soil, mg/kg	4	1	мсс
941107-Comp #4	Composite 4	EPA 418.1 (TRPH)	11/04/94	11/10/94	36	Soil, mg/kg	4	1	мсс
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MDL = Method Detection Limit ND = Not Detected (Below DLR) DLR- = MDL X Dilution Factor

DF 😊 Dilution Factor

Reviewed by Supervisor.

Reviewed/Approved By:

Laboratory Director

The $\operatorname{cov}_{\mathscr{L}}$ letter is an integral part of this analytical report.

Client:

Alaska Petroleum Environmental Engineering

Attn:

Mr. Glenn Stiilman

Date Sampled: Date Received: 11/04/94 11/07/94

Date Analyzed:

11/09/94

Matrix:

Soil

Client's Project: Atlas Radiator

Analyst Initials: RR

Lab No.:	Sample ID:	Benzen	c	Toluca	c	Ethylben	zene	Xylenes (to	otal)	Dilution
		Results, ug/kg	DLR, ug/kg	Factor						
Method Blank	NA	ND	5	ND	5	ND	5	ON	. 5	
941107-213	K16-3.5	ND	5	ND		ND	5	ND	5	
941107-214	J21 -3 .5	ND	5	ND	5	ND	5	ND	5	
941107–215	L12-3.5	ND	5	סא	5	ND		ND	5	
941107–216	K9-3.5	DN	5	ND	5	DИ	5	ND	5	
941107–217	M23-3.5	ND	5	ND	5	ND	5	ND	5	
941107 - 218	J2 -3 .5	ND	5	ND	5	ND	5	ND	5	
941107-219	M5-3.5	ND	5	ND	5	ND	5	ND	5	
941107-Comp "1"	Composite I	ND	5	ND	. 5	ND	_5	ND	5	
941107-Comp "2"	Composite 2	ND	5	ND	5	ND	5	ND	5	
941107-Comp "3"	Composite 3	ND	5	ND	5	ND	S	ND		
941107-Comp "4"	 	ND	5	ND	5	ND	- 5	ND	5	<u> </u>
			-			<u> </u>		,		5.7

MDL = Method Detection Limit

ND = Not Detected. (Below DLR)

DLR = MDL X Dilution Factor

Reviewed by Supervisor:

Reviewed/Approved By:

Laboratory Director

Date:

11-10-94

The cover letter is an integral part of this analytical report.

Advanced Technology Laboratories

Spike Recovery and RPD Summary Report

Method:

418,1

Analyst: MCC 4314-S Data File:

Date:

11/10/94

Sample ID:

941031-171

Matrix:

SOIL

ANALYTE	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	M\$ RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	DLR
TRPH	mg/Kg	5	5	100	ND	ND	40	40	41	_100	103	80 - 120	3	20	-4
						 									
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Approved by: <u>Charyl de Mos Pey</u> Cheryl De Los Reyes Inorganics Supervisor

Date: 11/10/94



Spike Recovery and RPD Summary Report

Mothod:

6010

Date Analyzed: 11/10/94

Analyst:

CDR/OL

Date Digested: 11/09/94

QA File: 4314 - 1 Sample ID:

941108 - 014

Data File:

41110 - 1

Matrix:

Soil (Digestion Factor: 100/2)

·					·	(Digestion These	511 10012					$\overline{}$
ANALYTE	UNITS	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	MDL
Antimony	nig/kg	<u>ND</u>	ND	5.0	3.4	3.1	68	62	55 - 120	9	30	4.0
Arsenic	mg/kg	ND	מא	5.0	4.9	5,0	98	100	55 - 120	2	30	2.0
Barium	nig/kg_	ND	5.3	5.0	11	9.7	114		55 - 120	26	30	0.5
Beryllium	mg/kg	ND	ND	5.0	4.5	4.7	90	94	55 - 120	4	30	0.5
Cadmiunt	mg/kg	ND	ND	5.0	5.0	5.1	100	102	55 - 120	2	30	0.5
Chromium	mg/kg	ND		5.0	6.0	6.1	98	100	55 - 120	2	30	0.5
Cobalt	mg/kg	ND	0.37	5.0	5.4	5.4	101	101	55 - 120	0	30	0.5
Copper	mg/kg	ND	0.74	5.0	5.5	5.5	95	95	55 - 120	0	30	0.5
Lend	mg/kg	ND	ND	5.0	4.8	4.8	96	96	<u> 55 - 120</u>	0	30	1.0
Molybdenum	mg/kg	ND	ND	5,0	4.6	4.6	92	92	55 - 120	0	30	0.1
Nickel	mg/kg	ND	1.1	5.0	6.1	6.1	100	100	55 - 120	0	30	1.0
Selenium	mg/kg	ND	ND		4.6	4.8	92	96	55 - 120	4	30	2.0
Silver	mg/kg	ND	ND	5.0	2.6	2,7	52	54	50 - 120	4	30	0.5
Tholtium i	mg/kg	ND	ND	5.0	. 4.5	4.4	90	88	55 - 120	0	30	1.0
Vanadium	nig/kg	ND	1.3	5.0	_6.0	6.1	94	96	55 - 120	2	30	0.5
Zinc	mg/kg	ND	1.1	5.0	6.2	5.2	102	82	55 - 120	22	30	0.5
				_			···					

Approved by: <u>Classified los Rey</u> Choryl De Los Reyes

Inorganics Supervisor

Date: 11/10/040



Spike Recovery and RPD Summary Report - SOIL (ug/kg

: C:\HPCHEM\5\METHODS\8021.M

Method Title

Title : 8010/8020 & 601/602 Last Update : Wed Nov 09 15:40:42 1994

Response via: Initial Calibration

Non-Spiked Sample: VC1160.D

Spike Spike

Sample Duplicate Sample

File ID: VS1191.D

Sample : Blank Soil MS BTEX Blank Soil MSD BTEX Acq Time: 09 Nov 94 11:45 PM 10 Nov 94 00:21 AM

Sample Spike Spike Dup Spike Dup RPD QC Limits Conc Added Res Res %Rec %Rec RPD % Rec Compound
 0.0
 30
 31.6
 32.1
 105
 107
 2
 21
 66-142

 0.0
 30
 30.5
 31.4
 102
 105
 3
 21
 59-139
 Benzene #2 Toluene #2

Reviewed and Approved by:

Scott Stratton Organics Supervisor Date: 11/10/94

PROJECT NO. PROJECT NAME SPECIAL INSTRUCTIONS TO LABORATORY PROJECT NAME PROJECT N	07 - 1	·	TURNAROUND TIME:	TYPE	2/	ANALYSIS						
SAMPLE ID DATE TIME SPECIAL INSTRUCTIONS TO LABORATORY K. 16-3, S. 11/1/41/104/104/104/104/104/104/104/104/	ALASKA PETROLEUM ENVIRONMENTAL ENGINEERING	Long Besch, CA Fairbanks, AK 90803 90708	72 TAT PIO FOR NEWLY, AMP	Glass> SS, Brass)	146.03 BTE		4					
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PROJECT NO. (/00 3 4)	PROJEC	TNAME AND	ahn	SAMPLER: Signature	'John	Container	Sample M	1.61%	(A A)	Y Dod'	,	* -					1	
SAMPLE ID DATE	TIME		SPECIAL INSTRUC	TIONS TO LABORATOR	RY	 	<u> </u>		7				-					
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ALASKA PETROLEUN ENVIRONMENTAL ENCINEERING	P.O. Box 14760 Long Beach, CA 90803 [310] 433-5144 FAX [310] 433-8988	P.O. Dox 81904 Fairbanke, AK 90708 (907) 479-9555	F 11-1	Container (Glass) SS, Brass)	Sample Mathx (Scil) Water)		Who. 13 cm	D Bres					10 m				
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Table IV Additional Background Sample Analysis and Laboratory Analytical Reports

Table IV Additional Background Sample Analysis

		Analytical Results (ppm)
Sample Identification	Depth (ft)	CCR Metals ³
SP7	Surface Grade	Cu @ 277 / Рb @ 1,540
J12-0.5	0.5	РЬ @ 81
J12-1.5	1.5	BTL
J12-2.5	2.5	Рь @ 237
M6-0.5	0.5	Cu @ 320 / Pb @ 9,700 / Zn @ 4,350
M6-1.5	1.5	Pb
M6-2.5	2.5	BTL
M6-3.5	3.5	BTL
J26-0.5	0.5	Рь @ 98
J26-1.5	1.5	BTL
J26-2.5	2.5	BTL
326-3.5	3.5	BTL
11800TNA'	Surface Grade	BTL
11440brick ²	Surface Grade	BTL

ft = feet

ppm = parts per million

Cu, Pb, Zn = Copper, lead and zinc, respectively

BTL = Below Threshold Limits

= Soluble Threshold Limit Concentration STLC

Off-site samples from County sewer installation excavations
 Only those results which exceed 10x the STLC action limit are reported



PERTIVER

NOV 28 1994 A. P. E. E.

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P. O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator 400342 Lab No.: 941120-001/014

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the parameters indicated in the enclosed chain of custody.

The sample(s) arrived chilled, intact, with a chain of custody record attached.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A/Yarizoff Laboratory Director

MAY/cb

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purpose without authorization is prohibited.

Clicat:

APEE

Atto:

Mr. Glenn Stillman

Client's Project:

Atlas Radiator, 400342

Date Received:

11/19/94

Matrix:

Soil mg/kg

Upits:

Digestion Method: 3050

EPA Method 6010 (CCR Metals)

T ab.	No -	941120-001	941120-002	041120 - 002	041120-004	041120 005	041120 006	041100 007	941120-008
									
Client Sample							M6-1.5	M6-2.5	M6-3.5
Date Sam	-						11/19/94	11/19/94	11/19/94
Date Dige						11/20/94		11/20/94	11/20/94
Дате Апај								11/21/94	11/21/94
Analyst loi	tials:	CDR/KS	CDR/KS	CDR/KS	CDR/KS	CDR/KS	CDR/KS	CDR/KS	CDR/KS
Dilution Fa	iclor:	1	1	1	<u> </u>	<u> </u> 1	1	1	1
ANALYTE*	DLR			l	RESUL	TS			
Antimony	4	ND	ND	ND	ND	41	24	ND	13
Arsenic	2	ND	ND	ND	ND	ND	ИN	ND	ND
Barium	0.5	5.0	41	118	84	193	990	96	
Beryllium	0.5	ND	ND	ND	ND	0.68	מא	ND	ND
Cadmium	0.5	1.3	מא	0.90	0.95	7.8	1.7	0.64	ND
Chromium ***	0.5	6.6	5.6	11	17	281	12	12	8.0
Cobalt	0.5	1.1	3.7	9.3	5.8	2.9	5.4	6.0	5.6
Copper	0.5	277	21	20	55	520	45	13	21
Lead	1	1540	81	8.7	237	9700	159	ND	6.9
Mercury **	0.50	ND	DИ	ND	ND	ND	ND	ND	ND
Molybdenum	1	ND.	מא	סא	ND	מא	םא ו	ND	2.1
Nickel	l 1	5.5	3.3	12	9.4	13	8,7	8,2	
Sclenium	2	ND	ND	ND	ND	ND	ND	ND	מא
Silver	0.5	11	ND	ND	מא	ND	ND	ND	
Thaiffum	1	מא	ДМ	ND	ND	ND	מא	מא	6.3
Vanadium	0.5	ND	7.9	23	16	144	20	25	
Zinc	0.5	147	123	40	525	4350	162	30	24

MDL = Method Detection Limit ND = Not Detected (Below MDL). DLR = MDL X Dilution Factor

Only listed constituents designated with TTLC an STLC under CCR Tiste 22

Analysis by EPA Method 7471, Factor is 2 From Pitle 22 – If the soluble chromium, as determined by the TCLP set forth in Appendix 1 of Chapter 18 of this division (4), less than 5 mg/l, and the soluble chromium, as determined by the procedure set forth in Appendix If of chapter 11, equals or exceeds 560 mg/l and the waste is not otherwise identified as a RCRA hazardous waste pursuant to acction 6626,100, then the waste is a non-RCRA hazardous waste.

The court fries is an integral part of the analysis alreport.

Client:

APEE

Alto:

Mr. Glenn Stillman

Client's Project:

Atlas Radiator, 400342

Date Received:

11/19/94

Matrix:

Soil

Units:

mg/kg

Digestion Method: 3050

EPA Method 6010 (CCR Metals)

<u> </u>	No.:	941120-009	941120-010	941120-011	941120-012	941120-013	941120-014	
Client Sample	J.D.:	J265	J26-1.5	J26-2.5	J26-35	11800TWA	11440BRICK	
Date Sam	pled:	11/19/94	11/19/94	11/19/94	11/19/94	11/19/94	11/19/94	
Date Dige	sted:	11/20/94	11/20/94	11/20/94	11/20/94	11/20/94	11/20/94	
Date Anal	yzed:	11/21/94	11/21/94	11/21/94	11/21/94	11/21/94	11/21/94	
Analyst Ini	itials:	CDR/KS	CDR/KS	CDR/KS	CDR/KS	CDR/KS	CDR/KS	
Dilution F.	actor:	1	1	1	1	1	1	
ANALYTE' DLR					RESUL	TS		
Antimony	4	ND	ND	12	20	18	ND	
Arsenie	2	66	9.6	7.0	6.2	19	ND	
Barium	0.5	140	120	160	118	133	72	
Beryllium	0.5	ND	ND	מא	ND	DИ	ИD	
Cadmium	0.5	1.1	1.2	1.2	0.87	1.2	0.54	
Chromium ***	0.5	12	9.9	17	11	10	4.8	
Cobalt	0.5	5.6	8.1	11	7.6	7.1	4.0	
Соррег	0,5	41	22	26	20	2.5	15	
Lead	1	98	5.9	1.3	5.0	8.7	2.7	
Мегсигу **	0.50	ND	ND	ND	ND	ND	ND	
Molybdenum	1	מא	ND	ND	1.6	UN	ИDI	
Nickel	1	8.3	10	13	11	8.2	3.7	
Selenium	2	ND	ND	7.5	2.6	םא [18	
Silver	0.5	ND	ND	ND	ND	13	7.4	i -
Thailium	1	ND	ND	ND	ND	ND	ND	
Vanadium	0.5	19	23	36	27	24	14	
Zinc	0.5	153	23	40	27	33	15	

MDL = Method Detection Limit ND Not Detected (Relow MDL).
DLR -= MDL X Dilution Factor

= Only fisted constituents designated with TTLC an STLC under CCR Title 22

= Analysis by EPA Method 7471, Factor is 2 = Fram Title 22 - If the soluble chromium, as determined by the TCLP set forth in Appendix 1 of Chapter 18 of this division (4), less than 5 mg/l , and the soluble chromium, as determined by the procedure set forth in Appendix If of chapter 11, equals or exceeds 560 mg/l and the waste is not otherwise identified as a RCRA hazardous waste pursuant to section 6626.100, then the waste is a non-RCRA bazardous waste.

The cover letter is an integral part of this analytical report.

Method:

7471

Date:

11/21/94

Analyst:

KS/OL

Sample ID:

941120-014 ms/msd

Data File:

4325 - 1

Matrix: Soil

ANALYTE	UNITS	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% REC Limit	RPD	RPD Limit	DLR
Мегсигу	mg/kg	ND	ND	2.5	2.4	2.6	94	103	55 - 120	9	30	0.50
												
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Approved by: _	Church de des reg
•	Cheryl De Los Reyes
	Inorganics Supervisor



Method:

6010

Date Analyzed: 11/21/94

Analyst: CDR/OL Date Digested: 11/20/94

QA File: 4325 - 1 Sample ID:

941120 - 014

Soil

Data File: 41121 - 1 Matrix:

(Digestion Factor: 100/2)

						(Digestion Luck						
ANALYTE	UNITS	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD_REC	% REC Limit	RPD	RPD Limit	MDL
Antimony	mg/kg	ND	ND	5,0	5.5	5.2	110	104	55 · 120	6	30 _	4.0
Arsenic	mg/kg	ND	ND	5.0	5.1	4.9	102	98	55 - 120	4	30	2.0
Darium	mg/kg	ND	1.40	5.0	6.4	6.8	100	108	55 - 120	8	30	0,5
Beryllium	mg/kg	מא	ND	5.0	5,3	4,8	106	96	55 - 120	10	30	0.5
Cadmium	mg/kg	טא	ND	5.0	5.3	4.6	106	92	55 - 120	14	30	0.5
Chromium	mg/kg	ND	מא	5,0	5.5	4.9	110	98	55 - 120	12	30	0.5
Cobalt	mg/kg	ND ND	ND	5.0	5,4	4,8	108	96	55 - 120	12	30	0.5
Copper	mg/kg	ND	0.30	5.0	5.5	5.5	104	104	55 - 120	0	30	0.5
Lead	ing/kg	מא	ND	5,0	5.4	4.8	108	96	55 - 120	12	30	1.0
Molybdenum	mg/kg	ND	ND	5,0	5.2	5.0	104	100	55 - 120	4	30	1.0
Nickel	ing/kg	ND	ND	5.0	5,2	4.R	104	96	55 - 120	8	30	1.0
Selenium	mg/kg	ND	ND	5.0	5.2	4.3	104	86	55 <u>- 120</u>	19	30	2.0
Silver	mg/kg	ND	ND	5.0	2.9	2.8	58	<u>56</u>	55 - 120	4	30	0.5
Thallium	mg/kg	DM	ND	5.0	5.4	4.5	108	90	55 - 120	18	30	1.0
Vanadium	mg/kg	DN	0.27	5,0	5.7	5.2	109	99	55 - 120	10	30	0.5
Zinc	mg/kg	ND	0.29	5.0	5.4	5.2	102	96	55 - 120	4	30	0.5
]		
	-											

Approved by: Chitryl delra |
Cheryl De Los Reyes

Inorganics Supervisor



	- <u> </u>		TUDNADOVND TIME.		түре			AVALYS			OTHER	
ALASKA PETROLEUM ENVIRONMENTAL ENGINEERING PROJECT NO. P	P. O. DOX 14760 LONG BEACH, CAUFORNIA (213) 433-5144 90803 FAX: (213) 433-6998	P. O. DOX 81904 FAIRBANKS, ALASKA (807) 479-0565 99708	TURNAROUND TIME: 2 Y TAT FUR MINITED ATA P/Q Sy /200 11/21 SAMPLERS: (SIgnature)	<u>(r</u>	STICS / BBASS / SS		PETROLEUM HC 418.1	BTXE 8020	EXTRACTABLE ORGANICS 625 / 8270	S TOTAL		
400 317	Itha With a	1-40	Dami LETTO. (Signatura)			8	ਜੂ	8 1	3 3	METALS		
SAMPLE DATE	TIME	SPECIAL INST	RUCTIONS TO LABORATORY	2		FUEL HC 8015 - M /	PETROL	BTXE 8020	EXTRAC	CCR ME		
SP-7 11/19/91	1645			77	/ F					X		
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Table V Stockpile Re-Analysis for Total Lead

Table VI Sampling Frequency and Test Methodology

> and Laboratory Analytical Reports

Table V Stockpile Re-Analysis for Total Lead

	Analytical Results (ppm)
Sample Identification	7420
SP - 1	5.9
SP - 2	6.1
SP - 3	344
ppm = parts per milli 7420 = Total lead	on

Table VI Sampling Frequency and Test Methodology¹

	Number of Discrete	Number of Composite	Number of Analysis (ppm) Composite							
Stockpile Number	Samples	Samples	7420	6010	239.1	STLC	Average Pb Concentration			
1	40	10	34	39	NA	NA	23.9			
2	40	10	96	77	0.54	NA	51.4			
3	45	11	304	149	0.93	NA	141.6			
4	40	10	179	180	0.23	NA	110.3			
5	40	10	782	177	1.8 NA		108.3			
6	20	5	NA	89	1.7	4.5	71.6			
					Composit	e Average	89.5			

1 Due to the volume of samples procured this is a condensed table

ppm = parts per million

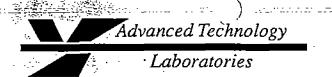
7420/6010 = Total lead

239.1 = TCLP (Toxicity Characteristic Leaching Procedure)

STLC = Soluble Threshold Limit Concentration

Pb = Lead

NA = Not Analyzed



NOV 2 1 1994 A. P. E. E

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, Y00342

Lab No.:

941115-001/003

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters:

The sample(s) arrived chilled, intact, with a chain of custody record attached.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the camples investigated and does not necessarily apply to other apparently identical or air-liar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.

Client: Alaska Petroleum Environmental Engineering

Attn: Mr. Glenn Stillman

Client's Project: Allas Radiator, Y00342

Date Received: 11/15/94
Date Digested: 11/15/94

Lab No.	Sample 1.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	DLR	DF	Analyst Initials
941115-001	SP-1	EPA 7420 (Lead)	11/15/94	11/16/94	5.9	Solid, mg/kg	2.4	1	KS
941115-002	SP-2	EPA 7420 (Lead)	11/15/94	11/16/94	6.1	Solid, mg/kg	2.4	1	KS
941115-003	SP-3	EPA 7420 (Lead)	11/15/94	11/16/94	344	Solid, mg/kg	2.4	1	KS
	 								
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MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DLR = MDL X Dilution Factor

DF = Dilution Factor

Reviewed/Approved By:

Michael Á. Yartzoff
Laboratory Director

Date: 11/16/94

The cover letter is an integral part of this analytical report.

Date Analyzed: 11/16/94

Method: 7420

Date Digested: 11/16/94

Analyst: KS/OL

Sample ID:

941115 - 340 ms/msd

Data File: 4320 - 2 Matrix:

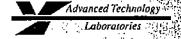
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Date: 11/16/94



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^{* \$10.00} FEE PER HAZARDOUS SAMPLE DISPOSAL.

December 9, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5206-001/005

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters:

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yarızoff Laboratory Director

MAY/cb

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is eddressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization in prohibited

Alaska Petroleum Environmental Engineering

Mr. Glenn Stillman Aun:

icct: Atlas Redice Client's Project: Atlas Radiator, 400343

Date Received: 12/07/94

Lab No.	Sample I.D	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst initials
5206-001	1SPA	EPA 7420 (Lead)	12/07/94	12/09/94	8.0	Soil, mg/kg	2.4		мсс
5206-002	1SPB	EPA 7420 (Lead)	12/07/94	12/09/94	8.0	Soil, mg/kg	2.4	2.4	мсс
5206-003	1SPC	EPA 7420 (Lead)	12/07/94	12/09/94	7.0	Soil, mg/kg	2.4	2.4	мсс
5206-004	1SPD	EPA 7420 (Lead)	12/07/94	12/09/94	18	Soil, mg/kg	2.4	2.4	мсс
5206-005	1SPE	EPA 7420 (Lead)	12/07/94	12/09/94	34	Soil, mg/kg	2.4	2.4	мсс
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MDL = Method Detection Limit ND = Not Detected (Below DLR) DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Michael A. Yartzoff Laboratory Director

The coverteneris animegral part of this analytical report.

Method:

7420

Date:

12/09/94

Analyst

MCC/OL/MS

Sample ID:

5206-001

Data File:

4343-S

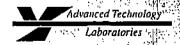
Matrix:

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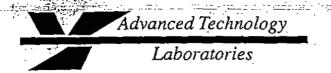
Approved by:

Cheryl De Los Reyes Inorganics Supervisor Date: 12/9/9//



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DEC 1 9 1994 A. P. E. E.

December 14, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5235-001/005

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yarrzoff Laboratory Director

MAY/cb

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Alaska Petroleum Environmental Engineering Mr. Glenn Stillman

Attn:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/13/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst Initials
5235-001	1SPA	EPA 6010 (Lezd)	12/07/94	12/14/94	13	Soil, mg/kg	1.0	1.0	CDR
5235-002	1SPB	EPA 6010 (Lcad)	12/07/94	12/14/94	24	Soil, mg/kg	1.0	1.0	CDR
5235-003	1SPC	EPA 6010 (Lead)	12/07/94	12/14/94	7.3	Soil, mg/kg	1.0	1.0	CDR
5235-004	1SPD	EPA 6010 (Lead)	12/07/94	12/14/94	39	Soil, mg/kg	1.0	1.0	CDR
5235-005	1SPE	EPA 6010 (Lead)	12/07/94	12/14/94	15	Soil, mg/kg	1.0	1.0	CDR
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MDL = Method Detection Limit ND = Not Detected (Below DLR) DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Laboratory Director

Date: 12-14-94

Method:

6010 (Lead)

Date:

12/14/94

Analyst:

CDR/OL

Sample ID:

5242 - 015

Data Filo:

4348 - 3

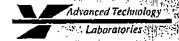
Matrix:

Soil

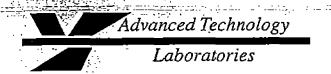
ANALYTE	UNITS	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% Rec Limit	RPD	RPD Limit	DLR
Lead	mg/kg	ND	1.10	5.0	6.0	6.3	98	104	55 - 120	6	30	1.0
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Approved by: <u>Cheryl Of Lts Jhn</u>
Cheryl De Los Reyes
Inorganics Supervisor

Date: M/14/any



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DEC 1 6 1994

December 7, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5184-001/003

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters:

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently literature or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited

Client:

Alaska Petroleum Environmental Engineering

Attn:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/06/94

Lab No.	Sample I.D.		nalysis	Date Sampled	Date Analyzot	Results,	Matrix, Units	MDL	DLR	Analysi Initials
5184-001	3T30	EPA 74	20 (L c ad)	12/05/94	12/07/94	144	Soil, mg/kg	2.4	2.4	CDR
5184-002	3T10	EPA 74	20 (Lead)	12/05/94	12/07/94	250	Soil, mg/kg	2.4	2.4	CDR
5184-003	3T20	EPA 74	20 (Lead)	12/05/94	12/07/94	171	Soil, mg/kg	2.4	2.4	CDR .
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MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Michael A. Yartzoff Laboratory Director Date: 12-7-94

The cover latter is en integral part of this analytical report

Method:

7420

Catherine - - atherine recording to make the contract of

Date:

12/07/94

Analyst

CDR/QL

Sample 1D:

5184 - 003

Data File:

4341 - 1

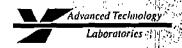
Matrix:

Soil

ANALYTE	UNITS	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS_REC	%MSD REC	% REC Limit	RPD	RPD Limit	DLR
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	Cheryl De Los Reyes
df - 1	Inorganics Supervisor

Date: 12/7/94



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DEC 1 6 1994

A. P. E. L

December 8, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No .:

5185-001/005

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

Enclosures

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This report penains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is laddressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited

Client:

Alaska Petroleum Environmental Engineering

Atm:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Leading Control

Date Received: 12/07/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzod	Results,	Matrix, Units	MDL	DLR	Analyst Initials
5185-001	Сотр ЗА	EPA 7420 (Lead)	12/06/94	12/08/94	304	Soil, mg/kg	2.4		CDR
5185-002	Сопр 3В	EPA 7420 (Lead)	12/06/94	12/08/94	116	Soil, mg/kg	2.4	2.4	CDR
5185-003	Сомр 3С	EPA 7420 (Lead)	12/06/94	12/08/94	135	Soil, mg/kg	2.4	2.4	CDR
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MDL = Method Detection Limit

ND = Not Detected (Below DLR)

DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Michael A. Yartzoff Laboratory Director

Date: 12-8-94

The cover letter is an integral part of this analytical report.

Date Analyzed: 12/08/94

7420 Method:

Date Digested: 12/08/94

Analyst: CDR/OL

4342 - 1

Data File:

Sample 1D: 5185 - 003

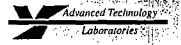
Matrix:

Soil

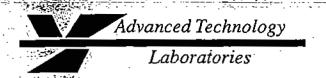
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Approved by: Ohurs de los Rey Cheryl De Los Reyes Inorganics Supervisor

Date: 12/8/194



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RECFIVED DEC 1 6 1994 A. P. E. E.

December 9, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5207-001/004

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters:

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

Enclosures

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Alaska Petroleum Environmental Engineering

Attn: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/07/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst Initials
5207-001	Composite 35PB	EPA 7420 (Lead)	12/07/94	12/09/94	89	Soil, mg/kg	2.4	2.4	мсс
5207-002	Composite 35PC	EPA 7420 (Lead)	12/07/94	12/09/94	70	Soil, mg/kg	2_4	2.4	мес
5207-003	Composite 35PD	EPA 7420 (Lcad)	12/07/94	12/09/94	72	Soil, mg/kg	2.4	2_4	мсс -
5207-004	Composite 35PE	EPA 7420 (Lead)	12/07/94	12/09/94	135	Soil, mg/kg	2.4	2.4	MCC
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MDL = Method Detection Limit

ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Michael A. Yartzoff

Laboratory Director

The cover legar is an integral part of this analytical report.

Method: Analyst: Data File: . 7420

Date:

12/09/94

MCC/OL/MS

Sample ID:

5206-001

4343-S

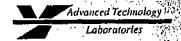
Motrix:

Soil

ANALYTE	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD_REC	% Rec Limit	RPD	RPD_Limit	DLR
Lend	ша/Ка	5	4.6	92	ND	8.0	250	290	205	113	. 79	55-120	34	30	2.40
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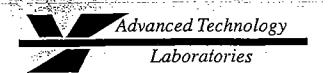
Approved by:

Cheryl De Los Reyco Inorganics Supervisor



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ALASKA PE ENVIRON ENGINE	TROLEUM MENTAL SERING	P. O. BOX 14 LONG BEACH, CA (213) 433-6144 FAX: (213) 43	LIFORNIA FA 80803 (90 I3-6998	P. O. BOX 81904 IRBANKS, ALASKA 77 473-8555 90708	P/Q	ROUND TIME: 24 hr TAT Fax roulds an averlah BS/(Signature)		GLASS / PLASTICS / BRASS / SS	FUEL HC 8015 - M / E	PETROLEUM HC 418.1	BTXE 8020 VOI ATI F ORGANICS 624 / 8240	EXTRACTABLE ORGANICS 625 / 8270	CCR METALS TOTAL	7620	
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DEC 1 9 1994 A. P. E. E.

December 14, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5234-001/004

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitter, for 🚉 exclusive use of the elient to whom it is is addressed. Any reproduction of this report or use of this Laboratory's name for adventising or publicity purposes without authorized on a prohibited

Alaska Petroleum Environmental Engineering

Arm: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/13/94

Lab No.	Sample 1.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst Initials
5234-001	3SPB	EPA 6010 (Lead)	12/07/94	12/14/94	137	Soil, mg/kg	1.0	1.0	CDR
5234-002	3SPC	EPA 6010 (Lead)	12/07/94	12/14/94	135	Soil, mg/kg	1.0	1.0	CDR
 5234-003	3SPD	EPA 6010 (Lead)	12/07/94	12/14/94	79	Soil, mg/kg	1.0	1.0	CDR
5234-004	3SPE	EPA 6010 (Lead)	12/07/94	12/14/94	149	Soil, mg/kg	1.0	1.0	CDR
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MDL = Method Detection Limit ND = Not Detected (Below DLR) DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Laboratory Director

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report

Method:

6010 (Lead)

Date:

12/14/94

Analyst:

CDR/OL

Sample ID:

5242 - 015

Data File:

4348 - 3

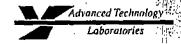
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ANALYTE	UNITS	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% Rec Limit	RPD	RPD Limit	DLR
Lead	mg/kg	ND	1.10	5,0	6.0	6.3	98	104	55 - 120	6	30	1.0
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Approved by: Churyl dilasku Cheryl De Los Reyes Inorganics Supervisor

12/14/94



December 22, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

DEC 2 9 1994 A. P. E. E.

Client's Project: Atlas Radiator, 400343

Lab No.:

5312-001/004

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoft Laboratory Director MAY/cb

Enclosures

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This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted to the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited

Client:

Alaska Petroleum Environmental Engineering

Attn:

Mr. Glenn Stillman

والمراج والمنار الإجهارة المتبرط

Client's Project: Atlas Radiator, 400343

Date Received: 12/13/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Anrly: Initials
5312-001	3SPB	EPA 239.1 (Lead)	12/07/94	12/22/94	ND	TCLP Extract, mg/l	0.15	0.15	ER/MCC
5312-002	3SPC	EPA 239.1 (Lead)	12/07/94	12/22/94	ND	TCLP Extract, mg/l	0.15	0.15	ER/MCC
5312-003	3SPD	EPA 239.1 (Lcad)	12/07/94	12/22/94	0.19	TCLP Extract, mg/l	0.15	0.15	ER/MCC
5312-004	3SPE	EPA 239.1 (Læd)	12/07/94	12/22/94	0.93	TCLP Extract, mg/l	0.15	0.15	ER/MCC
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MDL = Method Detection Limit = Not Detected (Below DLR)
= Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Laboratory Director

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report

Method:

239.1

Analyst

ER/OL

4357-T1 Data File:

Date:

12/22/94

Sample 1D:

See Below

Matrix:

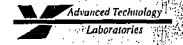
TCLP Extract

Sample 1D	UNITS	LCS Cone	LCS Res	% Rec	МЕТН ВLANK	SPL CONC	SPL DUP	% Dev	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% Rec Limit	RPD	RPD_Limit	DLR
5313-005	mg/L	5	5.1	102	מא	ND_	<u>N</u> A	NA	5.0	5.6	5.6	112		55 - 120	0	30	0.15
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Inorganies Supervisor

Dale: 12/22/94





MEMORANDUM (via facsimile)

2.15pm

Date:

December 21, 1994

To:

Puri - Advanced Technology Laboratory, Inc.

From:

R. Glenn Stillman

Re:

Atlas Radiator

P.O.#:

400343

As per our conversation this morning, please analyze the following samples on a priority basis for TCLP - lead:

5269-001 through 004 § 5270-001 through 004 5271-001 through 011

Alaska Office 907-479-9535 P.O. Box 81904 Fairbanks, Alaska 99708

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California Office 310+433-5144 FAX 310+432-6998 F.O. Bex 14766 Long Beach, California 90803

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RECEIVED

DEC 19 1994

A. P. L.

December 9, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5215-001/075

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters:

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

Enclosures

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Alaska Petroleum Environmental Engineering

Λιn:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/08/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Mahar, Units	MDL	DLR	Analyst Initials
5215-061	5SPA	EPA 7420 (Lead)	12/08/94	12/09/94	67	Soil, mg/kg	2.4	2.4	CDR
5215-062	5SPB	EPA 7420 (Lead)	12/08/94	12/09/94	80	Soil, mg/kg	2.4	2.4	CDR
5215-063	5SPC	EPA 7420 (Lead)	12/08/94	12/09/94	89	Soil, mg/kg	2.4	2.4	CDR
5215-064	5SPD	EPA 7420 (Lead)	12/08/94	12/09/94	145	Soil, mg/kg	2.4	2.4	CDR
5215-065	5SPE	EPA 7420 (Lead)	12/08/94	12/09/94	182	Soil, mg/kg	2.4	2.4	CDR
5215-066	4SPA	EPA 7420 (Lead)	12/08/94	12/09/94	120	Soil, mg/kg	2.4	2.4	CDR
5215-067	4SPB	EPA 7420 (Lead)	12/08/94	12/09/94	93	Soil, mg/kg	2.4	2.4	CDR
5215-068	4SPC	EPA 7420 (Lcad)	12/08/94	12/09/94	55	Soil, mg/kg	2.4	2.4	CDR
5215-069	4SPD_	EPA 7420 (Lcad)	12/08/94	12/09/94	124	Soil, mg/kg	2.4	2.4	CDR
5215-070	4SPE	EPA 7420 (Lead)	12/08/94	12/09/94	179	Soil, mg/kg	2.4	2.4	CDR
5215-071	2SPA	EPA 7420 (Lcad)	12/08/94	12/09/94	53	Soil, mg/kg	2.4	2.4	CDR
5215-072	2SPB	EPA 7420 (Lead)	12/08/94	12/09/94	96	Soil, mg/kg	2.4	2.4	CDR
5215-073	2SPC	EPA 7420 (Lead)	12/08/94	12/09/94	40	Soil, mg/kg	2.4	2.4	CDR
5215-074	2SPD	EPA 7420 (Lead)	12/08/94	12/09/94	27	Soil, mg/kg	2.4	2.4	CDR
5215-075	2SPE	EPA 7420 (Lead)	12/08/94	12/09/94	76	Soil, mg/kg	2.4	2.4	CDR
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MDL = Method Detection Limit ND = Not Detected (Below DLR)

= Dilution Factor (DLR/MDL)

Laboratory Director

The cover letter is an integral part of this analytical report.

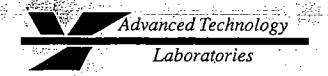
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DEC 1 9 1994 A. P. E. E.

December 14, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5242-001/015

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization (a), rohibited

Client:

Alaska Petroleum Environmental Engineering

Atm:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/08/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analy it Initials
5242-001	5SPA	EPA 6010 (Læd)	12/08/94	12/14/94	55	Soil, mg/kg	1.0	1.0	COR
5242-002	5SPB	EPA 6010 (Lead)	12/08/94	12/14/94	72	Soil, mg/kg	1.0	1.0	CDR
5242-003	SSPC	EPA 6010 (Lead)	12/08/94	12/14/94	81	Soil, mg/kg	1.0	1.0	CDR
5242-004	5SPD	EPA 6010 (Lead)	12/08/94	12/14/94	135	Soil, mg/kg	1.0	1.0	CDR
5242-005	5SPE	EPA 6010 (Lead)	12/08/94	12/14/94	177	Soil, mg/kg	1.0	1.0	CDR
5242-006	4SPA	EPA 6010 (Lead)	12/08/94	12/14/94	114	Soil, mg/kg	1.0	1.0	CDR
5242-007	4SPB	EPA 6010 (Lead)	12/08/94	12/14/94	83	Soil, mg/kg	1.0	1.0	CDR
5242-008	4SPC	EPA 6010 (Lead)	12/08/94	12/14/94	48	Soil, mg/kg	1.0	1.0	CDR
5242-009	4SPD	EPA 6010 (Lead)	12/08/94	12/14/94	107	Soil, mg/kg	1.0	1.0	CDR
5242-010	4SPE	EPA 6010 (Lead)	12/08/94	12/14/94	180	Soil, mg/kg	1.0	1.0	CDR
5242 - 011	2SPA	EPA 6010 (Lead)	12/08/94	12/14/94	43	Soil, mg/kg	1.0	1.0	CDR
5242-012	2SPB	EPA 6010 (Lcad)	12/08/94	12/14/94	77	Soil, mg/kg	1.0	1.0	CDR
5242-013	2SPC	EPA 6010 (Lead)	12/08/94	12/14/94	29	Soil, mg/kg	1.0	1.0	CDR
5242-014	2SPD	EPA 6010 (Lead)	12/08/94	12/14/94	17	Soil, mg/kg	1.0	1.0	CDR
5242-015	2SPE	EPA 6010 (Lead)	12/08/94	12/14/94	56	Soil, mg/kg	1.0	1.0	CDR
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MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Michael A. Yartzoff Laboratory Director Date: 12-14-94

The cover letter is an integral part of this enalytical report.

Spike Recovery and RPD Summery Report

Method: 6010 (Lend)

Date:

12/14/94

Analyst: CDR/OL

Sample ID:

5242 - 015

Data File: 4348 - 3

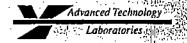
Matrix:

Soil

ANALYTE	UNITS	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS_REC	%MSD REC	% Rec Limit	RPD	RPD Limit	DLR
Lend	mg/kg	ND	1.10	5.0	6.0	6.3	98	104	55 - 120	6	30	1.0
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Approved by: Cheryl de les Ry

Cheryl Do Los Reyes Inorganics Supervisor Date: 12/14/94



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ALASKA PETROLEUM LONG BEACH, CAUFORNIA FAIRDANKS, ALASKA ENVIRONMENTAL (213) 433-6144 80803 (2007) 478-8555 80708 ENGINEERING FAX: (213) 433-6908 P, O, BOX 81804 P, O, BOX 81804 P, O, BOX 81804 P AND BOX 81804 B AND BOX 8	PETROLEUM HC 413.1 BIXE 8020 VOLATILE ORGANICS 624 / 8240 EXTRACTABLE ORGANICS 625 / 8270	
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December 22, 1994

ELAP No.: 1838

Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803 RECEIVED DEC 2 9 1994 A. P. E. E.

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5313-001/011

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the execusiva use of the effect to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.

Client

Alaska Petroleum Environmental Engineering

Am:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/08/94

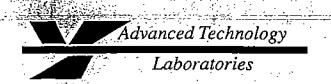
Lab No. S	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR'	Analyst Initials
13-001 5	SPA	EPA 239.1 (Lead)	12/08/94	12/22/94	1.8	TCLP Extract, mg/l	0.15	0.15	ER/MCC_
13-002 5	SPB	EPA 239.1 (Lead)	12/08/94	12/22/94	ИD	TCLP Extract, mg/l	0.15	0.15	ER/MCC
13-003 5	SPC	EPA 239.1 (Lead)	12/08/94	12/22/94	מא	TCLP Extract, mg/l	0.15	0.15	ER/MCC
13-004 5	SSPD	EPA 239.1 (Lcad)	12/08/94	12/22/94	0.24	TCLP Extract, mg/l	0.15	0.15	ER/MCC
13-005 5	SSPE	EPA 239.1 (Lead)	12/08/94	12/22/94	ND	TCLP Extract, mg/l	0.15	0.15	ER/MCC_
13-006 4	4SPA	EPA 239.1 (Lcad)	12/08/94	12/22/94	0.16	TCLP Extract, mg/l	0.15	0.15	ER/MCC
13-007 4	4SPB	EPA 239.1 (Lead)	12/08/94	12/22/94	ND	TCLP Extract, mg/l	0.15	0.15	ER/MCC
13-008 4	4SPD	EPA 239.1 (Lead)	12/08/94	12/22/94	0.19	TCLP Extract, mg/l	0.15	0.15	ER/MCC
13-009 4	4SPE	EPA 239.1 (L=2d)	12/08/94	12/22/94	0.23	TCLP Extract, mg/l	0.15	0.15	ER/MCC
13-010 2	2SPB	EPA 239.1 (Lead)	12/08/94	12/22/94	0.54	TCLP Extract, mg/l	0.15	0.15	ER/MCC
13-011 2	2SPE	EPA 239.1 (Lead)	12/08/94	12/22/94	ND	TCLP Extract, mg/l	0.15	0.15	ER/MCC
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		<u> </u>			<u> </u>			-	

MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Michael A. Kartzoff Laboratory Director Date: 12-22-94

The cover jetter is an integral part of this analytical report.



DEC 1 9 1994 A. P. E. E.

December 14, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5232-001/005

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

Enclosures

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Cliebt

Alaska Petroleum Environmental Engineering

Attn:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/07/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analysi Initials
5232-001	6SPA	EPA 6010 (Lead)	12/07/94	12/14/94	81	Soil, mg/kg	1.0	1.0	CDR
5232-002	6SPB	EPA 6010 (Lead)	12/07/94	12/14/94	89	Soil, mg/kg	1.0	1.0	CDR
5232-003	6SPC	EPA 6010 (Lead)	12/07/94	12/14/94	73	Soil, mg/kg	1.0	1.0	CDR ·
5232-004	6SPD	EPA 6010 (Lead)	12/07/94	12/14/94	48	Soil, mg/kg	1.0	1.0	CDR
5232-005	6SPE	EPA 6010 (Lead)	12/07/94	12/14/94	67	Soil, mg/kg	1.0	1.0	CDR
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MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Michael A. Yartzoff Laboratory Director Date: 12-14-94

The cover letter is an integral part of this analytical report

Spike Recovery and RPD Summary Report

Method: 6010 (Lead)

Date:

12/14/94

Analyst:

CDR/OL

Sample ID:

5242 - 015

Data File:

4348 - 3

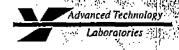
Matrix:

Soil

ANALYTE	UNITS	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% Rec Limit	RPD	RPD Limit	DLR
Lead	nig/kg	ND	1.10	5.0	6.0	6.3	98	<u>104</u>	55 - 120	6	30	1.0
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Approved by:	Charyl de los KN
	Cheryl De Los Reyes
	Inorganics Supervisor

Date: 10/14/04



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Client: Alaska Petroleum Environmental Engineering

Atm: Mr. Glean Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/07/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst Initials
5269-001	6SPA	EPA 7420 (Lead)	12/07/94	12/19/94	2.4	STLC Extract, mg/l	0.15	0.15	ER
5269-002	6SPB	EPA 7420 (Lead)	12/07/94	12/19/94	4.5	STLC Extract, mg/l	0.15	0.15	ER
5269-003	6SPC	EPA 7420 (Lead)	12/07/94	12/19/94	2.6	STLC Extract, mg/l	0.15	0.15	ER
5269-004	6SPD	EPA 7420 (Lead)	12/07/94	12/19/94	3.5	STLC Extract, mg/l	0.15	0.15	ER
]		
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	<u></u>			<u> </u>					

MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By: _____/

Michael A. Yartzoli

Laboratory Director

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report

Method:

7420

State agon with this transmissible hill more une error or a con-

ER Analyst:

Data File: 4353-GC1 Date:

12/19/94

Sample ID: See Below

Matrix:

STLC Extract

(Digestion Factor:100/10)

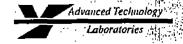
		<u> </u>									(Digestion Fact	or:100/10)					
Sample ID	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPL DUP	% Dev	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% Rec Limit	RPD	RPD Limit	DLR
5259-002	_mg/L	5.0	4.9	98	ND	5.3	6.0	12	5.0	8.5	8.1	64	56	<u>55 - 120</u>	14	30	0.15
5260-008	mg/L	5.0	4.7	94	ND	2.7	2.6	4	5.0	5.5	5.6	57	57	55 <u>- 120</u>	1	30	0.15
5261-010	_mg/L	5.0	4.7	94	ND	[8]	16		20	39	38	105	100	55 - 120	5	30	0.15
•5261-020	ing/L	5.0	4.0	80	_ND	30	35_	14	5.0	33	35	60	001	<u>55 - 120</u>	50	30	0.15
5270-004	mg/L_	5.0	4.9	98	ŅD	12	11_	9	5.0	17	17	100	100	<u>55 -</u> 120	0	30	0.15
**5271-010_	_mg/L	5.0		94	ND _	3.1	3.2	3	5.0	5.7	6.3	52	64	<u>55 - 120</u>	21	30	0.15
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^{*}High RPD due to sample nonhomogeneity.

Approved by:

Cheryl De Los Reyes

Inorganics Supervisor



^{**}Low spike recoveries due to sample matrix interference.

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December 22, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803 RECEIVED DEC 29 1994 A.P. E.E.

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5311-001/004

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

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Client:

Alaska Petroleum Environmental Engineering

Attn:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/07/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analysi loitiali
5311-001	6SPA	EPA 239.1 (Lead)	12/07/94	12/22/94	ND	TCLP Extract, mg/l	0.15	0.15	ER/MCC
5311-002	6SPB	EPA 239.1 (Lead)	12/07/94	12/22/94	ND	TCLP Extract, mg/l	0.15	0.15	ER/MCC
5311-003	6SPC	EPA 239.1 (Lead)	12/07/94	12/22/94	1.7	TCLP Extract, mg/l	0.15	0.15	ER/MCC
5311-004	6SPE	EPA 239.1 (Lead)	12/07/94	12/22/94	ND	TCLP Extract, mg/l	0.15	0.15	ER/MCC
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MDL = Method Detection Limit ND = Not Detected (Below DLR) = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Laboratory Director



MEMORANDUM (via facsimile)

2.15pm

Date:

December 21, 1994

To:

Puri - Advanced Technology Laboratory, Inc.

From;

R. Glenn Stillman

Re:

Atlas Radiator

P.O.#:

400343

As per our conversation this morning, please analyze the following samples on a priority basis for TCLP - lead:

\ 5269-001 through 004 5270-001 through 004 5271-001 through 011

Alaska Office 907 • 479-9555 P.O. Box \$1904 Feirbanks, Alaska 99708

 $\approx \approx$

 $\approx \approx$

California Office 310 • 433-5144 FAX 310 • 433-6998 P.O. Box 14766 Long Beach, California 90503

 $\approx \approx$

Table VII Base of Excavation/Secondary Infill Analysis

Table VIII
Second Lift/Secondary Infill Analysis

and
Laboratory Analytical Reports

Table VII
Base of Excavation/Secondary Infill Analysis

Sample	Depth	Number of	Analytical Results (ppm)					
Identification	(ft)	Discrete Samples	6010	239.1				
Composite 1	5	4	99	ND				
Composite 2	5	4	111	ND				
Composite 3	5	4	76	ND				
Composite 4	5	4	76	ND				
Composite 5	5	4	34	ND				

ft = feet

ppm = parts per million

6010 = Total lead

239.1 = TCLP (Toxicity Characteristic Leaching Procedure)

ND = Not Detected

Table VIII
Second Lift/Secondary Infill Analysis

		Number of	Analytical Results (ppm)					
Sample Identification	Depth (ft)	Discrete Samples	6010	239.1				
Composite 1	3.5	4	104	ND				
Composite 2	3.5	4	64	ND				
Composite 3	3.5	4	379	ND				
Composite 4	3.5	4	59	ОИ				
Composite 5	3.5	4	389	ND				

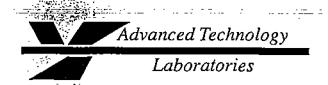
It = feet

ppm = parts per million

6010 = Total lead

239.1 = TCLP (Toxicity Characteristic Leaching Procedure)

ND = Not Detected



JAN 1 2 1995

A. P. E. Ľ.

December 30, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5378-001/025

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Composite No. 1 consists of: E3 - 5, J5 - 5, D13 - 5, J14 - 5Composite No. 2 consists of: F14 - 5, D7 - 5, I7 - 5, I12 - 5

Composite No. 3 consists of: K15 - 5, E6 - 5, I4 - 5, F9 - 5

Composite No. 4 consists of: G3 - 5, G12 - 5, K3 - 5, D10 - 5

Composite No. 5 consists of: C11 - 5, G8 - 5, H10 - 5, K10 - 5

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advantising or publicity purposes without authorization is prohibited

Client: Alaska Petroleum Environmental Engineering

Attn: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/29/94

Lab No.	Sample 1.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst Initials
5378-021	Софр 1	EPA 6010 (Lead)	12/29/94	12/30/94	99	Soil, mg/kg	1.0	1.0	ER/OL
5378-022	Сотр 2	EPA 6010 (Lead)	12/29/94	12/30/94	111	Soil, mg/kg	1.0	1.0	ER/OL
5378-023	Comp 3	EPA 6010 (Lead)	12/29/94	12/30/94	76	Soil, mg/kg	1.0	1.0	ER/OL
5378-024	Comp 4	EPA 6010 (Lead)	12/29/94	12/30/94	76	Soil, mg/kg	1.0	1.0	ER/OL
5378-025	Comp 5	EPA 6010 (Lead)	12/29/94	12/30/94	34	Soil, mg/kg	1.0	1.0	ER/OL
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MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Michael A. Yartzolf Laboratory Director Date: 12-30-94

The cover letter is an integral part of this ensytical report.

Client

Alaska Petroleum Environmental Engineering

Atin:

Mr. Gleon Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/29/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst Initials
5378-021	Comp 1	EPA 239.1 (Lead)	12/29/94	01/04/95	ИD	TCLP Extract, mg/l	0.15	0.15	мсс
5378-022	Comp 2	EPA 239.1 (Lead)	12/29/94	01/04/95	מא	TCLP Extract, mg/l	0.15	0.15	мсс
5378-023	Comp 3	EPA 239.1 (Lead)	12/29/94	01/04/95	ND	TCLP Extract, mg/l	0.15	0.15	мсс .
5378-024	Comp 4	EPA 239.1 (Lead)	12/29/94	01/04/95	ND	TCLP Extract, mg/l	0.15	0.15	мсс
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MDL = Method Detection Limit ND = Not Detected (Below DLR) = Dilution Factor (DLR/MDL) DF

Reviewed/Approved By:

Laboratory Director

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Summary Report

Method:

6010

Date:

12/30/94

Analyst

ER/OL

Sample ID:

See Below

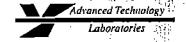
Data File: 4367-1

Matrix:

Soil

Data File:	4307-1																
Analyto:	Lead								1		(Digestion Fact	I		,			·
Sample ID	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPL DUP	% Dev	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% Rec Limit	RPD	RPD Limit	DLR
5378-025	mg/kg_	5.0	NA	NA	ND	0.68	NA	NA	5.0	6.4	6.5	114	116	55 - 120	_2	30	1,0
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 Dale: 12-30-94___



Spike Recovery and RPD Report

Method: 239.1

Data File:

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KS/OL

5004-4

Date: 01/04/95

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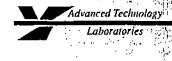
5378-021 Sample ID:

Matrix

TCLP Extract

Analyiq	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	MS_RESULT	MSD RESULT	%MS_REC	%MSD_REC	% Rec Limi	RPD	RPD Limit	DLR
Lead	mp/L	10	9.1	91	סא	ND	5.0	3.7	4.0	75	80	55 - 120	7.	30	0.15
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Approved by: _ Cheryl De Kon Reyen Inorganies Supervisor Dalo: 1-6-95



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	SPECIAL INSTI	RUCTIONS TO LABORATORY	anos/ainon	GLASS / PLASTICS / BRASS / SS FUEL HO 8015 - M / E	PETROLEUM HC 418.1 BTXE 8020	VOLATILE ORGANICS 624/8240 EXTRACTABLE ORGANICS 625/8270	CCR METALS TOTAL GOLD	1.f >		
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		YY	³E		ANAL	YSIS		OTHER
P. O. BOX 14768 ALASKA PETKOLEUM ENVIRONMENTAL ENGINEERING FAX: (213) 433-6144 80803 (807) 478-8555 PROJECT NO. PROJECT NAME (00)) (1) A (1) MAI MAI SAMPLE DATE TIME P. O. BOX 14768 P. O. BOX 61 FARBANKS, A FARBANKS, A FARBANKS, A FOR JUNE 1478-8555 P. O. BOX 61 FAX: (213) 433-6988 P. O. BOX 61 FARBANKS, A FARBANKS, A FOR JUNE 1478-8555 SPE	SLASKA PAINTY 141, MAX	цальувано	GLASS (PLASTICS) BRASS / SS	PUEL HG 8015 - M / E PETROLEUM HG 418.1	BTXE 8020	VOLATILE ORGANICS 624 / 8240	EXTRACTABLE ORGANICS 625 / 8270 COR METALS TOTAL (1778) . Q	1~1
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December 30, 1994

ELAP No.: 1838 Exp. Date: 12-31-94

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5386-001/025

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Composite No. 1 consists of: K3 - 3.5, G7 - 3.5, D11 - 3.5, K14 - 3.5Composite No. 2 consists of: D4 - 3.5, K7 - 3.5, J16 - 3.5, F11 - 3.5Composite No. 3 consists of: H3 - 3.5, I8 - 3.5, F15 - 3.5, E8 - 3.5Composite No. 4 consists of: I11 - 3.5, I8 -

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Michael A. Yartzoff Laboratory Director

MAY/cb

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Client:

Alaska Petroleum Environmental Engineering

Attn:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/30/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst Initials
5386-021	Comp 1	ЕРА 6010 (РЪ)	12/29/94	12/30/94	104	Solid, mg/kg	1.0	1.0	ER/OL
5386-022	Comp 2	ЕРА 6010 (Ръ)	12/29/94	12/30/94	64	Solid, mg/kg	1.0	1.0	ER/OL
5386-023	Comp 3	EPA 6010 (Pb)	12/29/94	12/30/94	379	Solid, mg/kg	1.0	1.0	ER/OL
5386-024	Сопр 4	EPA 6010 (Pb)	12/29/94	12/30/94	59	Solid, mg/kg	1.0	1.0	ER/OL
5386-025	Comp 5	EPA 6010 (Pb)	12/29/94	12/30/94	389	Solid, mg/kg	1.0	1.0	ER/OL
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MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/Approved By:

Michael A. Yanzolf / Laboratory Director Date: 12-30-94

The cover letter is an integral part of this analytical report.

Client

Alaska Petroleum Environmental Engineering

Atin:

Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Date Received: 12/30/94

Lab No.	Sample I.D.	Analysis	Date Sampled	Date Analyzed	Results,	Matrix, Units	MDL	DLR	Analyst Initials
5386-021	Сопр 1	EPA 239.1 (Lead)	12/29/94	01/04/95	ND	TCLP Extract, mg/l	0.15	0.15	мсс
5386-022	Comp 2	EPA 239.1 (Lead)	12/29/94	01/04/95	ND	TCLP Extract, mg/l	0.15	0.15	мсс
5386-023	Сотр 3	EPA 239.1 (Lead)	12/29/94	01/04/95	ND	TCLP Extract, mg/l	0.15	0.15	мсс
5386-024	Сотр 4	EPA 239.1 (Lead)	12/29/94	01/04/95	ND	TCLP Extract, mg/l	0.15	0.15	мсс
5386-025	Comp 5	EPA 239.1 (Lead)	12/29/94	01/04/95	ND	TCLP Extract, mg/l	0.15	0.15	мсс
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MDL = Method Detection Limit
ND = Not Detected (Below DLR)
DF = Dilution Factor (DLR/MDL)

Reviewed/A	pproved	By:	
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Michael A. Yarizoff

Laboratory Director

Date: 1-6-95

The cover letter is an integral part of this analytical report.

Spike Recovery and RPD Report

Method: Analyst:

Data File:

particularly appropriate and transfer of

239.1

KS/OL 5004-4 Date:

01/04/95

Sample ID:

5378-021

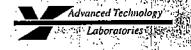
Matrix:

TCLP Extract

Analyto	UNITS	LCS Conc	LCS Res	% Rec.	METH DLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	MMS REC	жмsD_г	ŒC	% Rec Limi	RPD	RPD Limit	DLR
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Approved by: Cheryl De Los Reyes Inorganica Supervisor

Date: 46/95



Spike Recovery and RPD Summary Report

Method:

6010

Date:

12/30/94

Analyst:

ER/OL

Sample ID:

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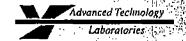
Data File: 4367-1

Matrix: Soil

Analyte:	Lead										(Digestion Fact	or:100/2)		<u></u>			
Sample ID	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPL DUP	% Dev	SPK ADDED	MS RESULT	MSD RESULT	%MS_REC	%MSD_REC	% Rec Limit	RPD	RPD Limi	DLR
5378-025	mg/kg	5.0	NA	<u>NA</u>	ND_	0.68	NA	NA_	5,0	6,4	6.5	114	116	55 - 120	_2	30	1.0
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Approved by:

Chery De Los Reyes Inorganics Supervisor Date: 12-30-94



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ALASKA PETROLEUM ENVIRONMENTAL ENCINEERING FA PROJECT NO. PROJEC	BEACH, CALIFORNIA FAIRE (5) 433-5144 90803 (907) 4 AX: (213) 433-5998	DOX 81904 JANKS, ALASKA 179-0555 90708 P/C	INAROUND TIME: TAT, FLAN MULTI AJAP LEHIS: (SIGNATURE)	Koup	:⊏\!	FUEL RU 8015 - M / E PETROLEUM HO 418.1	020	VOLATILE ORGANICS 624 / 8240 EXTRACTABLE ORGANICS 625 / 8270	CCR METALS TOTAL (60/0 /5	50 from Py austria
	IME	SPECIAL INSTRUCTION	NS TO LABORATORY	Даль	GLASS FLA	PETROLEUM P	BTXE 8020	VOLATI EXTRA	808 ¥	<u> </u>
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Table IX Third Lift/Secondary Infill Analysis

and Laboratory Analytical Reports

Table IX Third Lift/Secondary Infill Analysis

	7 5 7 1 87 2 8 7	Number of	Analytical Results (ppm)
Sample Identification	Depth (ft)	Discrete Samples	6010
Composite 1	2	4	104
Composite 2	2	4	136
Composite 3	2	4	117
Composite 4	2	4	107
Composite 5	2	4	120

ft = feet

parts per millionTotal lead ppm 6010

FEB 1 4 1995

A. P. E. E.

ELAP No.: 1838 Exp. Date: 12-31-94

February 6, 1995

Alaska Petroleum Environmental Engineering P.O. Box 14766 Long Beach, CA 90803

ATTN: Mr. Glenn Stillman

Client's Project: Atlas Radiator, 400343

Lab No.:

5702-001/025

Gentlemen:

Enclosed are the results for sample(s) received by Advanced Technology Laboratories and tested for the following parameters in the enclosed chain of custody.

Composite 1 consists of H5-2,K11-2,E16-2,H2-2

Composite 2 consists of K7-2, E9-2, J14-2, L2-2

Composite 3 consists of F3-2, C9-2, I12-2, J4-2

Composite 4 consists of D5-2, G10-2, D12-2, F7-2

Composite 4 consists of I8-2, L15-2, G14-2

Thank you for the opportunity to service the needs of your company. Please feel free to call me at (310) 989 - 4045 if I can be of further assistance to your company.

Sincerely,

Edgar P. Caballero Laboratory Director

MAY/cb

Enclosures

This cover letter is an integral part of this analytical report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advantising or publicity purposes without authorization is prohibited

Spike Recovery and RPD Summary Report

Method:

6010 (Lead)

Date:

02/06/95

Analyst:

ER/OL

Sample ID:

See Below

Data File:

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5037-GC2

Soil Matrix:

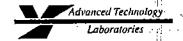
Digestion Factor: 100/2

Sample UNITS LCS Cone LCS Res % Rec METH BLANK SPL CONG SPL DUT % Dev SPK ADDED MS RESULT MSD RESULT WMS REC WMSD REC & Rec Limit RPD RPD Limit DLR												Digestion / Bene					$\overline{}$	$\overline{}$
5698-013 mg/kg 10 '11 111 ND 36 34 4 5.0 41 41 119 110 55 - 120 8 30 1.0 5698-020 mg/kg 10 10 100 ND 4.1 2.7 40 5.0 8.2 7.5 82 69 55 - 120 18 30 1.0	Sample ID	טאודג	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPL DUP	% Dev	SPK ADDED	MS RESULT	MSD RESULT	%MS REC	%MSD REC	% Rec Limit	RPD	RPD Limit	DLR
5698-020 mg/kg 10 10 100 ND 4.1 2.7 40 5.0 8.2 7.5 82 69 55-120 18 30 1.0	5698-003	ing/kg	10	10	103	ND .	0.43	0.48	52	5.0	5.3	5.6	97	103	<u>55 - 120</u>	6	30	1.0
	5698-013	mg/kg	10	-711	111	ND	36	34	4	5.0	41	41	119	110	55 - 120	8	30	1.0
5698-026 mg/kg 10 10 103 ND 0.17 0.14 22 5.0 5.0 100 96 55-120 4 30 1.0	5698-020	mg/kg_	10	10	100	ND	4.1	2.7	40	5.0	8.2	7.5	82	69	55 - 120	18	30	1.0
	5698-026	mg/kg_	10	01	103	ND :	0.17	0.14	22	5.0	5.2	5.0	100	96	55 - 120	4	30	1.0
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Approved by: _

Cheryl De Los Royes Inorganics Supervisor

Dale: 2/6/95



Spike Recovery and RPD Summary Report

Method:

239.1

Date:

02/08/95

Analyst:

KS/OL

Sample ID:

5702-021

Data File:

5039-1

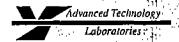
Matrix:

STLC Extract

ANALYTE	UNITS	LCS Conc	LCS Res	% Rec	METH BLANK	SPL CONC	SPK ADDED	MS RESULT	MSD RESULT	%MS_REC	%MSD REC	% Rec Limit	RPD	RPD Limit	DLR
Lead	mg/L_	5.0	4.8	96	ND	6.6	5.0	9.8	9.8	63	64	<u>55</u> - 120	2	30	.0.15
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Approved by: Cheryl De Los Reyes
Inorganics Supervisor

Date: 2/9/95



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P. O. DOX 14766 ALASKA PETROLEUM ENVIRONMENTAL ENCINEERING FAX: (213) 433-6144 POB FAX: (213) 433-6144 POB PROJECT NO. PROJECT NAME	ORINA FAIRDANKS, ALASKA 803 (907) 479-0555 90708	TURNAROUND TIME: IN INCLUDED THE TO AT A TO A TO A TO A TO A TO A TO A		anos.	GLASS/PLASTICS// BRASS/SS	FUEL HC 8015 - M / E	PETROLEUM HC 418.1	BIXE 8020 VOLATILE ORGANICS 624 / 8240	EXTRACTABLE ORGANICS 625 / 8270	CORMETALS TOTAL PG only		
400343 Ht las 1	MMINIC	UCTIONS TO LABORATORY			[상 	오	링티	잃	\forall \sqrt{2}	[빛]		
SAMPLE DATE TIME	SPECIAL INSTR			TOONID	<u>3</u>		PETH	BTXE 8020 VOLATILE	8	8	_	
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E9-1	\			$\left \downarrow \right $	+	_	_ -		╀-		-	\dashv
J14 -2			_{-	$ \downarrow $	1	_			-			_
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11/1/1	DATE/TIME RÉCEIVED DY: (Signal しょう ロー・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・											
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DWN:

CHKD:

DATE:

S.R.R.

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DES.:

APPD:

REV.:

S.R.R.

A.L.S.

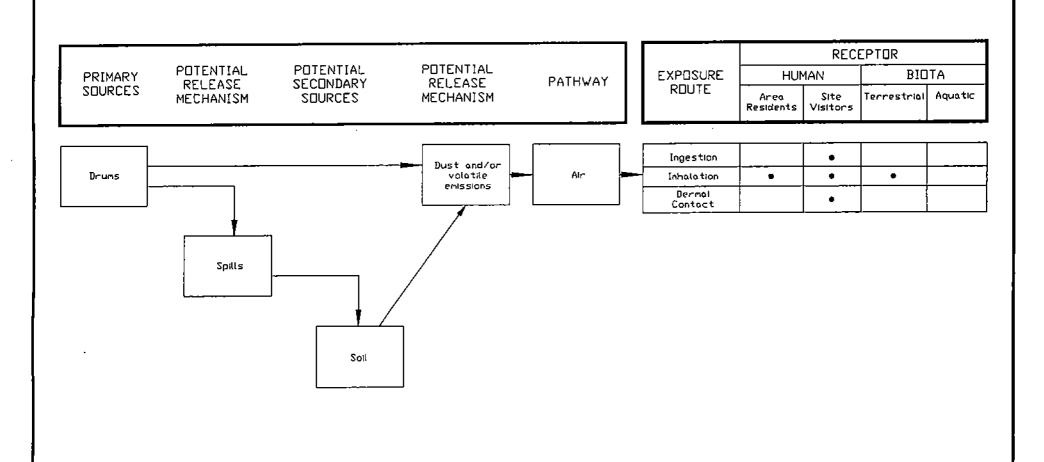
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PROJECT NO .:

FIGURE NO.:

400343

8



DON MILLER - ATLAS RADIATOR COMPANY

POTENTIAL LEAD EXPOSURE PATHWAY

CONCEPTUAL SITE MODEL DIAGRAM

10110 NORWALK BOULEVARD

SANTA FE SPRINGS, CA

TITLE:

LEGEND:

Masko Olfice P.O. Box 51904 Foltonia, Mosko 99705 907-478-9555

California Office P.O. Bos 14768 Long Beach, California 90803 310-433-5144 Fas: 310-433-8998

ALASKA PETROLEUM

(A) (A) (B) (B) (B) (B) (B) (B) (B) (B) (B) (B		LEAD SCRI	EENING PARAME	TERS [I]		
Constituent	Concentration [2] (ug/g)	Airborne Dust (ug/m³)	Plant Uptake (yes/no)	Exposure (dys/wk)	Skin Exposure (cm²)	Soil Ingestion (mg/d)
Lead	340	1,000	No	5	5,800	240

- [1] Addendum to Chapter 7 of DTSC Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities.
- [2] Concentration taken is the highest lead composite concentration detected during all sampling events.

NOTE:

ug/g = micrograms per gram

ug/m³ = micrograms per cubic meter

dys/wk = days per week
cm² = square centimeter
mg/d = milligrams per day

Table XI

Lead Risk Assessment Spreadsheet

California Department of Toxic Substance Control

INPUT			OUTPUT						
MEDIUM	LEVEL			per	centile	s		PRG-99	PRG-95
LEAD IN AIR (ug/m ^ 3)	0.15		50th	90th	95th	98th	99 t h	(ug/g)	(vg/g)
LEAD IN SOIL (ug/g)	340.0	BLOOD Pb. ADULT (ug/dl)	2.7	4.3	4.9	5.6	6.2	1077.4	1608.8
LEAD IN WATER (ug/l)	15	BLOOD Pb, CHILD (ug/dl)	5.3	8.4	9.5	11.0	12.1	183.4	387.0
PLANT UPTAKE? 1 = YES 0= NO	0	BLOOD Pb. PICA CHILD (ug/di)	22.9	36.0	40.8	47.2	51.9	18.9	39.8
RESPIRABLE DUST (ug/m 13)	1000	SLOOD Pb. INDUSTRIAL (ug/dl)	3.4	5.3	6,0	7.0	7.7	572.2	846.5

EXPOSURE PARAMETERS

_		resid	tential		industrial
	units	adults	children	children	adults
General				with pica	
Days per week	days/wk	7	7	7	5
ermal Contact		<u> </u>			
Skin area	cm ^ 2	3700	2500	2500	5500
Soil adherence	mg/cm^2	0.5	0.5	0.5	0.5
Route-specific constant	(ug/d)/(ug/day)	0.00011	0.00011	0.00011	0.00011
oil ingestion	_	_		-	
Soil ingestion	mg/dey	25	55	790	240
Route-specific constant	(ug/dl)/(ug/day)	0.0176	0.0704	0.0704	0.0176
nhalation					
Breathing rate	m ∩ 3/day	20	10	10	20
Route-specific constant	(ug/dl)/(ug/day)	0.082	0.192	0.192	0.082
/ater ingestion					
Water ingestion	l/day	1.4	0.4	0.4	1.4
Route-specific constant	(ug/dl)/(ug/day)	0.04	0.16	0.16	0.04
Food ingestion					
Food ingestion	kg/day	2.2	1.3	1.3	2.2
Route-specific constant	(ug/dl)/(ug/day)	0.04	0.16	0.16	0.04
Dietary concentration	ug/kg	10.0	10.0	10.0	10.0
Lezd in produce	ug/kg	10,0	10.0	10.0	

PATHWAYS, ADULTS

	Reside	ntial	l Industi	ial	
Pathway	Blood Pb ug/dl	of total	Blood Pb ug/dl	percent of total	Concentration in medium
SOIL CONTACT:	0.07	2%	0.07	2%	340 ug/g
SOIL INGESTION:	0.15	5%	1.03	30%	340 ug/g
INHALATION:	0.80	29%	0.57	17%	0.49 ug/m ^ 3
WATER INGESTION:	0,84	31%	0,84	25%	15 ug/l
FOOD INGESTION:	88,0	32%	0.68	26%	10.0 ug Pb/kg diet

· PATHWAYS, CHILDREN

	Typical		with pica		<u> </u>
Pathway	Blood Pb ug/di	percent of total	Blood Pb ug/dl	percent of total	concentration
SOIL CONTACT:	0.05	1%		0%	340 ug/g
SOIL INGESTION:	1.32	25%	18.91	82%	340 ug/g
INHALATION:	0.94	18%	0.94	4%	0.49 ug/m ^ 3
WATER INGESTION:	0.96	18%	0.96	4%	15 ug/l
FOOD INGESTION:	2.08	39%	2.08	9%	10.0 ug Pb/kg diel